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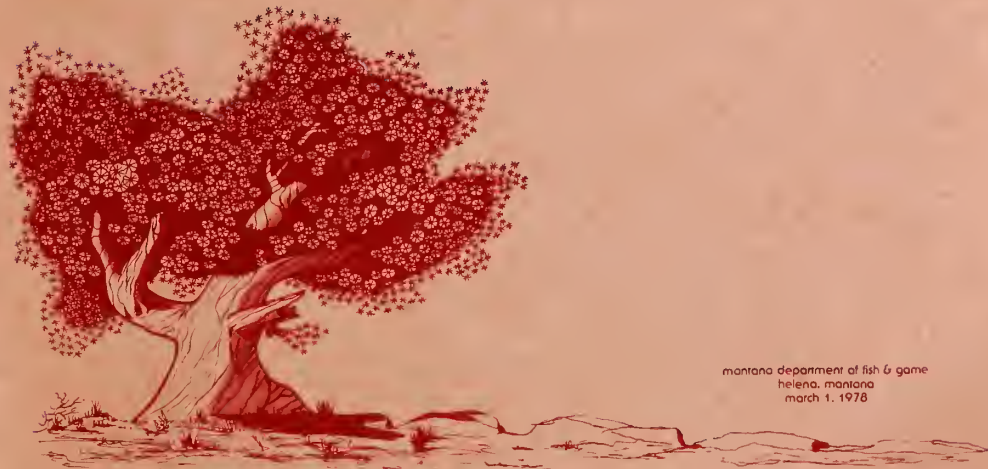
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1978 MONTANA STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN  
(SCORP)

A Strategic Plan for the Protection, Perpetuation, and Use  
of  
Montana's Wildlife, Fish and Recreational Resources



montana department of fish & game  
helena, montana  
march 1, 1978

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# STATE OF MONTANA

## DEPARTMENT OF

## FISH AND GAME



I am pleased to provide you with the 1978 Montana Statewide Comprehensive Outdoor Recreation plan. This represents the first effort at a unified strategic plan addressing all aspects of Montana's varied recreational environment - wildlife, fish and parks. The particular emphasis is the role and posture of the Montana Department of Fish and Game in dealing with these issues. The plan will serve as a guide to budgeting, resource management, long-range planning and the evaluation of accomplishments.

I believe this plan, unlike previous efforts, will lead to a new and effective planning and administrative process increasingly involving the public and private sector in decisions which affect this state's precious recreation resources. For the first time, the public can review the agency's concerns in dealing with our three major programs - Wildlife, Fish and Parks.

In order to facilitate this involvement, advisory committees of selected citizens will begin immediately to revise individual chapters according to the following schedule:

<u>CHAPTER</u>	<u>ANTICIPATED DATE</u>
	<u>OF</u> <u>REVISION COMPLETION</u>
Downhill Skiing	November, 1978
Snowmobiling	March, 1978
Off-Highway Vehicle Recreation	December, 1979
Special Populations	March, 1980

I encourage anyone wishing to comment on these or other matters discussed in the plan to contact us.

Sincerely,

ROBERT WAMBACH  
Director  
Department of Fish and Game



State of Montana  
Office of The Governor  
Helena 59601

THOMAS L. JUDGE  
GOVERNOR

Helena, Montana  
March 1, 1978

Mr. Derrell P. Thompson  
Regional Director  
Heritage Conservation &  
Recreation Service  
P.O. Box 25387  
Denver Federal Center  
Denver, Colorado 80225

Dear Mr. Thompson:

As Governor of Montana, I am pleased to present the "1978 Montana Statewide Comprehensive Outdoor Recreation Plan." This document is the official statewide recreation plan prepared in accordance with the requirements for participation in the Federal Land and Water Conservation Fund Program. It is a major step toward accomplishing the goal of benefiting the people with optimum outdoor recreation opportunities consistent with proper resource management while maintaining a high quality environment.

Development of the plan has allowed ample opportunity for public participation. At the same time we recognize the planning process as continuous and view this plan as a catalyst stimulating a greater and more orderly involvement of the public and private sectors of our economy in decisions which affect recreation.

I have reviewed and concur with the Department of Fish and Game Administrative Regional delineations used in the plan and believe that they will contribute to a useful comprehensive plan and an effective program of implementation.

On behalf of Montana, I wish to express my sincere appreciation for the diligent efforts of the Bureau of Outdoor Recreation in assisting with this plan. I hope we will continue this mutually beneficial partnership with the newly created Heritage Conservation and Recreation Service.

Sincerely,

  
Thomas L. Judge  
Governor

TLJ  
Enc.



1978

MONTANA STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN

(SCORP)

A Strategic Plan for the  
Protection, Perpetuation, and Use  
of

Montana's Wildlife, Fish, and Recreational Resources

STATE OF MONTANA

Thomas L. Judge, Governor

THE MONTANA FISH AND GAME COMMISSION

Joseph J. Klabunde, Chairman

Arthur G. Hagenston  
Alfred L. Bishop

Spencer S. Hegstad  
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MONTANA DEPARTMENT OF FISH AND GAME

Dr. Robert F. Wambach, Director  
Fletcher Newby, Deputy Director  
Orville W. Lewis, Associate Director  
Don L. Brown, Management Planning Coordinator  
Ron Holliday, State Liaison Officer

Helena, Montana  
March 1, 1978





#### ACKNOWLEDGEMENTS

The Montana Department of Fish and Game wishes to express its appreciation to the many Federal, State and local agencies and private individuals that provided information and assistance during the development of this plan. Special thanks for technical assistance is due the U. S. Fish and Wildlife Service planning specialists, Colorado Division of Wildlife, Bureau of Outdoor Recreation Denver Regional Office and the Montana Department of Social and Rehabilitation Services.

This document was financed in part through a grant from the Bureau of Outdoor Recreation, United States Department of the Interior, under the provisions of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578).

Permission is granted to reprint any portion of this document provided due credit is given and with the understanding that sole responsibility for use and interpretation of the data herein lies with the reader.

This plan is subject to continuous maintenance and amendment as new data becomes available. Persons interested in commenting or becoming otherwise involved in the planning process are urged to contact the State Liaison Officer, Ron Holliday, Administrator, Parks Division, Montana Department of Fish and Game, Helena, Montana, 59601. Phone: (406) 449-3750.



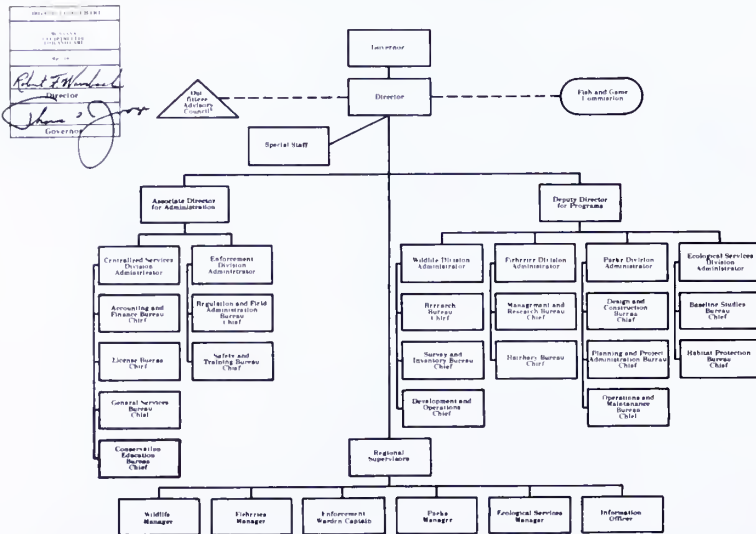
Montana Statewide Comprehensive  
Outdoor Recreation Plans (SCORPs):<sup>1</sup>

March 1, 1978	1978 Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP)	Volume 1 - strategic plan Volume 2 - outdoor recreation inventory
March 1, 1973	Montana Statewide Outdoor Recreation Plan	Volume 1 - executive summary Volume 2 - an information base Volume 3 - appendix
June 27, 1969	Montana Statewide Outdoor Recreation Plan	plan action program appendix
January 20, 1967	Montana Statewide Outdoor Recreation Plan	plan
September 10, 1965	Montana Statewide Outdoor Recreation Plan	plan

<sup>1</sup> The 1978 plan addresses Fish and Wildlife Programs as well as Parks and Recreation.

# MONTANA DEPARTMENT OF FISH AND GAME ORGANIZATIONAL CHART

2



\*No rule making authority under the Montana Administrative Procedure Act

## CONTENTS

Introductory Material .....	White Section, pages 1 to 10
Fish & Wildlife Programs .....	Buff Section, pages 1 to 208
Parks Program .....	Green Section, pages 1 to 100



## FOREWORD

Outdoor recreation is an important part of the heritage of Montanans and has been a source of enrichment to the quality of their lives. People today and in the future will also continue to need the opportunity to spend some of their leisure time in outdoor activities that are both physically beneficial and spiritually refreshing. The importance of outdoor recreation has been well demonstrated by relatively high rates of participation in hunting, fishing, and an ever increasing variety of other outdoor activities.

A review of the history of more developed states with problems of advanced environmental degradation in its many forms illustrates how increasing population and resource consumption has resulted in substituting man-made goods for natural amenities. Montana's natural resources are likewise in jeopardy if development proceeds untempered and without restraints. The opportunity still exists in Montana, with appropriate planning, foresight, dedication, and cooperation, to protect the state's natural environment while utilizing its bountiful resources to meet the needs of the future.

Montana is a state rich in a variety of natural and cultural resources that in the past have been shared by relatively few people. High quality outdoor recreation with diverse choices has been a way of life for Montanans. Intensifying land use and accelerating human pressures seriously challenge that way of life and the future quality and quantity of recreational resources. The destiny of these resources depends upon what is done with, on, for, or to the land in the future.

Implementation of legislation, such as the Montana Environmental Policy Act and restrictive mining laws, reflect the changing attitudes of the state's citizens. There is strong concern that the state's environmental quality not be subservient to economic development, but rather that it be an integral and realistic part of planning for the state's future.

We are in full agreement with the three basic principles of the Montana Environmental Policy Act (Sec. 69-650) R.C.M. 1947) that:

"a) the high quality of Montana's natural resources, particularly its renewable resources, must be maintained and enhanced; b) Montana's natural resources must be allocated to the widest variety of beneficial uses while minimizing degradation of the resources; and c) the timing and intensity of resource use must not deny the coequal right of succeeding generations to use natural resources."

The Department of Fish and Game necessarily has been a leader in striving for better stewardship of the land in order to carry out its assigned responsibilities to protect, maintain, enhance, and manage for the wise use of the state's fish and wildlife, general outdoor recreation assets, and specific cultural resources. In view of current trends, *the future of natural resource management can only bring an era of increasing stress upon a generally limited resource base.* This plan is optimistic as it calls for improvement in addition to maintenance. It will require significant departures from routine and "business as usual" approaches used in the past by many agencies and groups, legislative bodies and this department. It is a major step toward meeting the responsibilities, tasks, and challenges of the future.

Our goal is *to benefit the people of Montana and visitors with optimum outdoor recreational opportunities consistent with proper resource management while recognizing human needs and desires and maintaining a high quality environment.* I am therefore proud to present the 1978 Montana Statewide Comprehensive Outdoor Recreation Plan.



Dr. Robert F. Wambach, Director  
Montana Department of Fish and Game

## INTRODUCTION

NEED FOR PLANNING

The Montana Department of Fish and Game is the legally designated manager of the state's fish and wildlife. In addition, it is also legally responsible for protecting and managing Montana's scenic, cultural, scientific and recreational resources. The department has little control over land-use practices that impact fish, wildlife, culture, and other resources worthy of conservation. Forecasts indicate that increasing complexities and obstacles will have to be dealt with if we are to sustain current outdoor recreational resources. The *effectiveness* of the department as the principal spokesman for Montana's outdoor recreational resources will have a major bearing on the future *quality of life* of people in Montana.

Inflationary trends and advanced technologies have caused the costs of management and problem solving to exceed traditional sources of funding. Thus, ways must be found not only to become more *effective* in attaining goals but to become more *efficient* in operation. Sound planning is a major management tool in attaining that high level of effectiveness and efficiency.

PURPOSE

The purpose of adopting comprehensive planning is to develop an improved goal-objective oriented *program management system* to improve the department's capability to carry out its broad resource responsibilities and to serve the expanding and changing needs of the people within the financial framework available. Program planning-management requires organizing the department's activities in line with its program goals and objectives while satisfying the traditional functions designed to manage personnel of different disciplines and training. Program planning-management requires formation of a department program structure that allows a systematic evaluation to insure that the optimum level of desired program outputs (such as high quality recreation) can be maintained despite changing circumstances. This type of management focuses first on the program outputs desired *prior* to establishing the inputs (money, personnel, and materials) needed.

Thus comprehensive planning and management is intended to aid the decision-making process in an effort to increase the department's effectiveness and efficiency in the challenging years ahead. A planning and management system including program goals and quantified objectives is needed to:

1. provide a means of analysis that assists the decision-maker in critically evaluating what the department is doing and what it should be doing in the future;
2. provide a method to measure the progress of all department programs and to minimize internal organizational problems caused by functional lines of authority;
3. provide continuity of department programs;
4. provide a means for improving information to the public and the legislature regarding the department's direction, problems, needs and evaluation of accomplishments;
5. promote timely action rather than only reaction to resource management decisions;
6. improve efficiency in use of public monies to gain desired public benefits;
7. strengthen the department's position in alerting other resource users to the needs and values of recreational, scientific and cultural resources; and
8. promote maximum effectiveness in coordination and cooperation with the comprehensive plans and programs of other government agencies, Montana's communities and the private sector.



SCOPE OF DEPARTMENT'S PRINCIPAL LEGAL RESPONSIBILITIES AND AUTHORITY  
FOR FISH, WILDLIFE AND PARKS PROGRAMS

The 1972 Montana Constitution provides that,

"The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations. . . . The legislature shall provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources."

In order to help implement this constitutional mandate, the Montana Department of Fish and Game is charged by statutes of the State of Montana with the supervision of all the fish and wildlife of the state (Sec. 26-104, R.C.M. 1947). Included in the many associated laws (Sec. 26-101.1 to 26-1809, R.C.M. 1947) is the authority for: the protection, preservation and propagation of fish, game, fur-bearing animals and game and nongame birds within the state; the setting of seasons and limits for utilizing game, birds, fish and furbearers; assents to Acts of Congress governing the conservation of wildlife (Pittman-Robertson Act) and fish (Dingell-Johnson Act) that provide federal aid revenues collected from excise taxes on certain hunting and fishing equipment; The Stream Preservation Act; The Natural Streambed and Land Preservation Act of 1975; a legislative policy on the conservation of nongame and endangered species declaring that certain nongame wildlife should be managed for human enjoyment, for scientific purposes and to ensure their perpetuation as members of ecosystems and that endangered species should be protected to maintain and, where possible, enhance their numbers.

The Montana Department of Fish and Game is vested with the duties and powers necessary to the maintenance of a state park system for the purposes of conserving the scenic, historic, archaeological, and recreational resources of the state, and of providing for their use and enjoyment, thereby contributing to the cultural,

recreational, and economic life of the people (Sec. 62-301 to 403, R.C.M. 1947). As a portion of this responsibility, the Fish and Game Department is designated by law (Sec. 62-401 to 403, R.C.M. 1947) as the state agency to implement the federal Land & Water Conservation Fund Act of 1965. Thus the Department of Fish and Game is designated as the state agency in charge of outdoor recreation. Recreation is defined to include: hunting, fishing, swimming, boating, water skiing, camping, picnicking, pleasure driving, winter sports, hiking and other pleasure expeditions.

In addition, the Department is responsible for a variety of miscellaneous laws including motorboat and vessel regulations to promote water safety (Title 69, R.C.M. 1947), litter laws (Title 32, R.C.M. 1947), snowmobile regulations (Title 53, R.C.M. 1947), motorboat fuel tax (Title 69, R.C.M. 1947), and trespass laws and firearms acts (Title 94, R.C.M. 1947).

Other state laws influencing department activities include the Montana Environmental Policy Act, Flood Plain law, Strip Mining and Utility Siting laws, Subdivision laws, Water Use Acts, Water Quality Act, Pesticide Act, Lakeshore Protection Act, Renewable Resources Development Act and others.

# GOAL OF THE DEPARTMENT OF FISH AND GAME

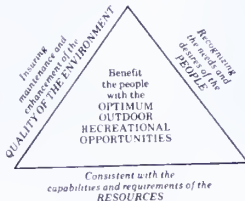
Implicit in the wide scope of Department responsibilities is the ultimate end result of benefiting current and future generations of people through its charges and actions of *protecting, preserving, enhancing, and regulating* the wise utilization of the fish and wildlife and other outdoor recreation and cultural resources. Outdoor recreation

(wildlife and non-wildlife oriented) is the principal "end product" that this Department is responsible for providing to the public. Listed below is the overall Goal Statement for the Department of Fish and Game as approved by the Fish and Game Commission and as presented to the people of the State in the MONTANA OUTDOORS magazine (March/April 1974).

## GOAL STATEMENT

*To benefit the people of Montana and visitors with the optimum outdoor recreational opportunities; emphasizing the tangible and intangible values of wildlife and the natural and cultural resources of aesthetic, scenic, historic, scientific, and archaeological significance, in a manner:*

1. *consistent with the capabilities and requirements of the resources*
2. *recognizing present and future human needs and desires*
3. *insuring maintenance and enhancement of the quality of the environment*



This plan describes projected wildlife, fish and recreational resource status through 1990. Goals for each program are outlined. Six-year objectives are stated for major elements of the Wildlife and Fish Programs while five-year objectives are stated for major tasks to be addressed in the Parks Program.

The Wildlife and Fish Programs address animal species and their use on a regional and/or statewide basis. Plans are presented for the categories and elements of the program structure listed below. The program structure designates by species and groups of species the basic elements to be used for planning and subsequent operations.

The Parks Program consists of various functional activities which produce, enhance and manage recreation. The output elements of the program are quantified in occasions of specific types of recreation provided. The program structure listed below is centered around these output elements and the functional activities currently being used to manage for them. The plan emphasizes the identification of major problems which need to be addressed in order to better manage these output elements and other related activities.

### Plan Implementation

Operational plans will describe the specific projects and activities necessary to accomplish the objectives of this strategic plan. These operational plans specify the money, logistics and authority needed for project implementation and the outputs and accomplishments to be achieved. These plans will serve as the basis for the department's biennial program planning and budgeting request to the state legislature.

## PROGRAM STRUCTURE

WILDLIFE PROGRAM			FISH PROGRAM		
<u>Big Game</u>	<u>Small Game</u>	<u>Nongame</u>	<u>Game Fish Streams</u>	<u>Game Fish Lakes</u>	<u>Nongame Fish</u>
Mule Deer	Native Mountain Grouse	Nongame Mammals	Trout	Trout - Kokanee	Commercial fish
White-tailed Deer	Blue	Nongame Birds	Other Salmonids	Other Salmonids	Other fish
Elk	Ruffed	Reptiles	Paddlefish	Non Salmonids	Amphibians
Antelope	Spruce	Endangered Species	Non Salmonids		Invertebrates
Other Big Game	Native Prairie Grouse				
Moose	Sage				
Big Horn Sheep	Sharp-tailed		<u>Activity Structure</u>	<u>PARKS PROGRAM</u>	<u>Output Element</u>
Mountain Goats	Introduced Upland		Acquisition, Design, Development		Camping and Day Use
Black Bear	Game Birds		Operation and Maintenance		Boating
Grizzly Bear	Pheasant		Law Enforcement		Summer Trail Activities
Cougar	Hungarian Partridge		Planning		Swimming
Bison	Chukar		Land and Water Conservation Fund		Vehicular Recreation
	Turkey		Administration		Site Oriented Winter Activities
	Migratory Game Birds		Program Administration		Downhill Skiing
	Ducks		Information and Education		Winter Trail Activities
	Geese		Snowmobile Administration		Snowmobiling
	Other Migratory Game Birds				Sightseeing
	Furbearers				Urban Recreation

# MAJOR ISSUES TO BE RESOLVED

10

- \* Inflationary trends and increased resource management requirements are accelerating costs beyond traditional funding sources.
- \* Increasing participation in all types of outdoor recreation is increasing the use and deterioration of presently available resources.
- \* Maximum effectiveness and efficiency in achieving department goals and objectives could be aided by changing the provisions of some laws, regulations and rules.
- \* A systematic evaluation method for statewide needs and specific land acquisition proposals is needed to insure attainment of department goals through land acquisition.
- \* There are apparently many people who are not aware of, or do not appreciate, the value of Montana's wildlife, fish and other recreational resources.
- \* Expanded and intensified land and water uses are often detrimental to wildlife, fish and other recreational resources.
- \* Public access for recreation to private land or through private land to public land is limited and is expected to be further restricted in the future.
- \* Current methods of program planning and priority budgeting need to be scrutinized as to their adequacy in managing recreational resources. Alternative methods should be evaluated.
- \* Land and Water Conservation Fund grants to communities must be maintained at a high level of efficiency.
- \* More basic knowledge is needed on many wildlife and fish species, especially nongame and endangered species, in order to better manage these as a part of Montana's recreational resources.
- \* The impact of non-residents on Montana's recreational resources needs to be identified so that goals and policies can be established or reviewed as appropriate.
- \* Increased efforts are necessary to effect better coordination between the department and other resource management agencies and within the department itself. Particularly roles, responsibilities, and policies must be better defined.
- \* The importance of nongame and endangered wildlife and fish species to the people of Montana needs to be assessed so that appropriate efforts can be made to protect, perpetuate, enhance and manage these species for human enjoyment.
- \* The department should initiate the establishment of an adequately funded unified comprehensive off-highway vehicle management program for the State of Montana.
- \* Recreational resource management activities of Federal agencies are often underfunded while their authority is often over-extended and their roles, responsibilities and policies are either poorly defined or ineffectively communicated.
- \* The department should become more active in identifying, providing and promoting a wide variety of recreational resources and activities which will allow people to participate in outdoor recreation every season, year-around.

A STRATEGIC PLAN  
FOR  
MONTANA'S  
WILDLIFE AND FISHERIES  
PROGRAMS  
1977-1990

Prepared By:

Thomae Mussehl, Wildlife Program Planner  
John Gaffney, Fisheries Program Planner  
Dennis Flath, Nongame Biologist



## TABLE OF CONTENTS

WILDLIFE AND FISH PROGRAMS

<u>Page</u>	<u>Page</u>
MAJOR PROBLEMS AND STRATEGIES . . . . .	1-vi
WILDLIFE PROGRAM INTRODUCTION . . . . .	137
BIG GAME STRATEGIC PLAN . . . . .	139
Archery Hunting . . . . .	140
Mule Deer - Statewide . . . . .	141
Mule Deer - Regions . . . . .	143
White-tailed Deer - Statewide . . . . .	145-152
White-tailed Deer - Regions . . . . .	153
Elk - Statewide . . . . .	155-159
Elk - Regions . . . . .	161
Antelope - Statewide . . . . .	162-163
Antelope - Regions . . . . .	165
Moose - Statewide . . . . .	165-170
Moose - Regions . . . . .	171
Bighorn Sheep - Statewide . . . . .	173
Bighorn Sheep - Regions . . . . .	175-182
Mountain Goat - Statewide . . . . .	183
Mountain Goat - Regions . . . . .	184-188
Mountain Lion - Statewide . . . . .	189
Black Bear - Statewide and Regions . . . . .	191-197
Grizzly Bear - Statewide . . . . .	199
SMALL GAME STRATEGIC PLAN . . . . .	201
Mountain Grouse - Statewide . . . . .	202
Prairie Grouse - Statewide . . . . .	203
Introduced Upland Game Birds - Statewide . . . . .	205
Waterfowl - Statewide . . . . .	
Furbearers - Statewide . . . . .	
NONGAME WILDLIFE STRATEGIC PLAN . . . . .	
Mammals - Statewide . . . . .	
Birds - Statewide . . . . .	
Reptiles - Statewide . . . . .	
Endangered Species - Statewide . . . . .	
WILDLIFE METHODOLOGY . . . . .	
WILDLIFE APPENDICES . . . . .	
FISH PROGRAM INTRODUCTION . . . . .	
GENERAL PROBLEMS AND ACTIONS NEEDED . . . . .	
MAP OF ADMINISTRATIVE REGIONS . . . . .	
GAME FISH - STREAMS . . . . .	
Trout - Statewide . . . . .	
Trout - Regions . . . . .	
Other Salmonids - Statewide . . . . .	
Other Salmonids - Regions . . . . .	
Paddlefish - Statewide . . . . .	
Paddlefish - Regions . . . . .	
Nonsalmonids - Statewide . . . . .	
Nonsalmonids - Regions . . . . .	
GAME FISH - LAKES . . . . .	
Trout-Kokanee - Statewide . . . . .	
Trout-Kokanee - Regions . . . . .	
Other Salmonids - Statewide . . . . .	
Other Salmonids - Regions . . . . .	
Nonsalmonids - Statewide . . . . .	
Nonsalmonids - Regions . . . . .	
NONGAME FISH . . . . .	
Commercial Fishing - Statewide . . . . .	
Amphibians, Invertebrates, Other Fish - Statewide . . . . .	
FISHERIES METHODOLOGY . . . . .	
FISHERIES APPENDICES . . . . .	





## MAJOR PROBLEMS AND STRATEGIES:

### FISH AND WILDLIFE PROGRAMS

1

The Fish and Wildlife Programs have a common goal of *protecting, perpetuating, enhancing, and regulating the wise use of renewable resources (fish and wildlife)* for public benefit now and in the future. The Department thus has a two-fold responsibility: (1) to protect, maintain and enhance the habitat that produces the abundance and diversity of fish and wildlife that is an integral part of Montana's heritage, and (2) to provide current and future generations of people an equitable distribution of diverse and high quality outdoor recreation through the wise utilization of fish and wildlife resources. This dual challenge is a formidable task in the face of increasing human populations, land use developments, tightening access to private and public lands and inflating costs of management.

Fish and/or wildlife species occur on every square mile of the state. Approximately 868 species of fish and wildlife occur in Montana and are under the jurisdiction of the Montana Fish and Game Commission and the Montana Department of Fish and Game. Included are 80 species of fish, 10 big game mammals legally hunted, over 66 small game mammals and birds, and many nongame birds, mammals, reptiles, amphibians, and invertebrates. Four species are classified as endangered.

Montana has a total area of 147,138 square miles with over 1,260 square miles of water surface divided into seven Fish and Game administrative regions. About 30 percent of the state's land is controlled by the Federal government, 6 percent by state government and 64 percent is private. The majority of private land is used for agricultural purposes; there are now 23,500 farms and ranches -- a decrease of 14 percent in 10 years. Over 76 million acres of the state's land area, or 82 percent, is used for agricultural purposes. About 23 million acres, or 25 percent of the state's land area is forested and wood products are a major industry. Large segments of Montana are underlaid by vast coal reserves and significant quantities of oil and natural gas. National demands are accelerating pressures for expanding development of Montana's underground energy resources.

Montana's human population is estimated at 746,000 for 1975, a 7 percent increase since the 1970 census. There are currently about 5 persons per square mile. The human population is very unevenly distributed with concentrations of people in the valleys of the west and near the major rivers of the east. Current in-state migration trends indicate continued movement from sparsely populated areas to established human concentration areas. The state's Department of Community Affairs' projection (medium series) for 1980 is 790,000 people; for 1985, 860,000 people; for 1990, 924,000 people; with over 1,000,000 by year 2000.

The rate of participation of Montana citizens and visitors in hunting, fishing and nonconsumptive fish and wildlife uses is an indicator of the high importance of these resources for outdoor recreation. During the 1974-75 license year over 262,000 residents purchased fishing and hunting licenses. Thus, about 35 percent of the state's total residents, or 63 percent of those between ages 15-65, fish and/or hunt. Not included are the undetermined number of unlicensed "varmint" hunters and fishermen (under the age of 15). Approximately 381,500 resident and nonresident persons purchased more than 1,112,000 hunting and/or fishing licenses in Montana between May 1, 1974 and April 30, 1975. Recent household surveys by the Parks Division indicate that 43 percent of Montanans (ages 16-60) participate in wildlife viewing. Current trends indicate the public participation rate will continue or increase during the next 15 years.

Montanans exercise a high degree of mobility in pursuing their outdoor recreation needs, according to a recent household survey. About one-third of the households surveyed throughout the state indicated they traveled outside the Fish and Game Region in which they lived to fish and hunt. (The 7 Fish and Game Regions include from 4 to 12 counties and range in size from 10,250 to over 31,700 square miles.)

In 1975, sportsmen participated in an estimated 5,200,000 days of big and small game hunting, fishing and trapping. No recent analysis of the statewide economic impact of fishing and hunting has been made in Montana. The Environmental Quality Council Annual Report (1976) states

(continued)

that the income accruing to Montana from recreational resources (excluding hunting and fishing license revenues) may be as high as 2 to 8 percent of the state's total income. If the average daily expenditure for hunting and fishing is \$20, over \$100,000,000 annually may be generated in the state's economy. Not included is the economic impact of thousands of persons participating in "varmint" hunting and nonconsumptive uses such as birdwatching, wildlife photography, and nature study and appreciation. Surveys to determine the volume of nonconsumptive use of fish and wildlife in Montana have not yet been undertaken. Colorado surveys indicated about 1.5 days of nonconsumptive fish and wildlife use for each day of hunting, fishing and trapping. Colorado's ratio of nonconsumptive use is probably higher because of its higher human density and large metropolitan areas. Yet Colorado data is an indicator that: (1) the volume of nonconsumptive fish and wildlife use in Montana may currently be in the millions of days, and (2) trends of increasing human densities and urban concentrations may be accompanied by increased interest in nonconsumptive wildlife uses.

-----

Projections indicate an estimated 6,500,000 days of hunting, fishing and trapping activities will take place in Montana by 1980. If Montana's human population reaches 1,000,000 in the 1990's, current participation rates would result in approximately as many *resident* hunters and fishermen as there is now in *total of residents and nonresidents*.

Following are listed the major problems confronting both the Fish and Wildlife Program and strategies for dealing with them. More specific problems and strategies are listed under the programs and/or regions.

MAJOR PROBLEMS FACING FISH AND WILDLIFE PROGRAMS AND  
STRATEGIES AND ACTIONS NEEDED

---

PROBLEM:

*Expanding and intensifying land and water uses are deteriorating the carrying capacity of fish and wildlife habitats.*

STRATEGIES:

Conduct pertinent field studies to improve knowledge of fish and wildlife species' life requirements and to ascertain the impact of man-caused and natural changes in the environment.

Improve current means of environmental surveillance necessary to detect and monitor changes in Montana's fish and wildlife habitat.

Participate sufficiently in federal, state and local land use planning to insure adequate consideration for fish and wildlife needs.

Inform the public, other agencies and land users of those developments, practices and human activities that are detrimental, or beneficial, to Montana's fish and wildlife resources. Some of the major threats to fish and wildlife habitat receive little formal resistance from our agency.

Secure control of key fish and wildlife habitats where feasible.

Enter into litigation on key court cases affecting land use decisions.

Maintain Department information program regarding fish and wildlife habitat needs.

Establish or describe the demand for wildlife. Provide the amount of fish and wildlife habitat necessary to support that amount of wildlife.

Encourage enactment of legislation which provides increased protection to fish and wildlife habitat and recognizes fish and wildlife and associated recreation as high priority beneficial uses of land and water.

Encourage enactment of legislation which requires our input into major actions affecting fish and wildlife habitat such as the Natural Streambed and Land Preservation Act does.

Encourage coordination of public land use practices to provide improved harmony with fish and wildlife needs.

Encourage private landowners to alter or avoid land use practices that degrade fish and wildlife habitat.

Participate in the development of a state policy on energy conservation and development that minimizes environmental degradation to fish and wildlife habitat.

Insist on strict enforcement of environmental laws that extend consideration to fish and wildlife habitat.

Encourage all users of the land to seek and heed advice from fish and wildlife professionals in the planning phase of developments and land uses and consider all alternatives to minimize impact to fish and wildlife.

Continue support in efforts to secure key fish and wildlife habitats.

## MAJOR PROBLEMS (cont'd)

### PROBLEM:

*Increasing demands are expected for all types of fish and wildlife-oriented recreation.*

### STRATEGIES:

Increase emphasis to attain more equitable distribution of fish and wildlife users in space and time.

Improve means by which fish and wildlife recreational opportunity can be provided to an increasing number of people without lowering the quality and diversity of the recreation.

Emphasize the importance of the quality of the fish and wildlife recreational experience and the necessity to improve the behavior and ethics of fish and wildlife users afield including reduction of poaching loss.

Improve methods for determining the status and changes in demand for fish and wildlife-oriented recreation.

Continue efforts to improve hatchery fish and their utilization in waters that are not managed for wild trout fisheries.

Improve public awareness of, appreciation for, and concern for nongame wildlife.

Encourage utilization of nongame species such as "varmint" hunting and angling for nongame fish such as perch, etc.

Analyze available information, experience, and status of laws and regulations with the view to develop hunting recreation parameters to guide the Department in making regulations when they are needed to distribute hunters in time and space.

### PROBLEM:

*A significant portion of fish and wildlife resources occur on private land where public access opportunities will rapidly decline unless satisfactory solutions can be found. Closed private lands also preclude access to public lands.*

### STRATEGIES:

Determine exactly why these lands are closed or restricted to public use.

Upgrade field surveys to determine distribution of harvestable fish and wildlife in relation to public-private ownership.

Improve methods for determination of current use levels and evaluation of potential utilization.

Conduct extensive contacts with private landowners to determine acceptable conditions for maintaining land open to the public at some reasonable degree.

Regulate the distribution of hunters and fishermen in time and space to avoid over-concentrations of people seeking entry to the same areas.

Enter into cooperative agreements providing for access to private lands and waters in exchange for Department services.

Seek solutions through establishment of various levels of Land Access Committees that represent all concerned parties.

Improve public awareness of available public lands and waters by improved marking and map availability.

Emphasize the importance of improved individual behavior and ethics of recreationists seeking access to private land.

Cooperate with public land agencies and landowners to improve access to public lands that are blocked by private holdings.

Maintain and improve access to public lands and waters by purchasing and/or leasing easements through private lands.

Seek legislative approval to improve recreational access to state lands.

Recreationists should be encouraged to help police their ranks and to report offending individuals.

Encourage adults to teach and demonstrate good hunting ethics to youngsters.

Means should be sought to make public hunting and fishing an economic benefit to private landowners rather than an undesirable and costly activity.

Support legislation that will redefine navigability on the basis of a water's capability to support recreational use rather than on its history of use for commerce.

Critical habitat on all lands should be specifically identified and landowners encouraged to manage their lands respecting wildlife values and needs.

## MAJOR PROBLEMS (cont'd)

### PROBLEM:

*Large segments of the public are uninformed or are not appreciative of the needs of fish and wildlife.*

### STRATEGIES:

Continue current educational efforts and seek improved means to improve public understanding of wildlife ecology and relationships to the human environment.

Strive for broader legislative, governmental and public support that the maintenance, enhancement and wise utilization of fish and wildlife resources be a primary state goal to insure a high quality of life for current and future generations.

Promote fish and wildlife conservation education in public schools through legislation with funding and/or working with school administration.

Develop means for involving interested laypersons in assisting with fish and wildlife management and investigation. Examples of on-going efforts are the Fisherman Log Program and guidance to Carroll College Honors Thesis Projects in biology.

### PROBLEM:

*Inflationary trends and increasing resource management complexities are accelerating operational costs beyond the capacity of traditional sources of funding.*

### STRATEGIES:

Strive for broader public understanding that fish and wildlife resources are a public asset and responsibility. Develop methods whereby all wildlife users and other recreationists contribute their fair share to support management costs.

Develop and implement methods to improve Department efficiency. Develop systematic means to give priority to those projects which are most efficient in meeting program objectives.

Evaluate and, as necessary, seek revision of license fees so that fish and wildlife users who demand high-priced management are charged more equitably.

Develop intensive management plans on Department wildlife areas with the view of coordinating agricultural and forest crops and livestock grazing with wildlife habitat needs that would yield income from private sharecroppers and leases to help pay for operation and maintenance of Department wildlife areas.

Create and develop Federal-State programs that provide wildlife funds to state agencies to participate in land use decisions affecting wildlife habitat.

Give high priority to establishing a grant seeking function within the Department to supplement traditional revenue sources.

Encourage Congress to expand the excise tax concept into all types of outdoor recreation equipment to fund fish and wildlife conservation programs, both game and nongame.

PROBLEM:

*Existing and proposed federal laws, regulations and rules, and some state laws and regulations, preclude effective management and the achievement of Department goals and objectives.*

STRATEGIES:

Establish a system for identifying all conflicting laws, rules and regulations; publish them with an explanation of the conflict for public understanding and involvement.

Streamline areas of conflict at inter-agency meetings with strong suggestions that the agency representatives report the problems back to the source of the problem instead of merely accepting them as irreversible.

Make the Governor aware of all conflicts and urge that his office voice the necessary objections to appropriate authority.

Enter into litigation on court cases that adversely affect fish and wildlife.

PROBLEM:

*A systematic means to evaluate statewide needs in land acquisition and to make the best choices is lacking.*

STRATEGIES:

Develop methods for evaluation of a site's potential to meet regional or statewide needs for resource protection or fish and wildlife-oriented recreation.

Implement planning project 710 to determine the systematic means of evaluating potential land acquisitions.

Develop criteria to evaluate or form the basis for comparison of fish, wildlife and recreation potential among available tracts of land.

Define and establish procedures of establishing priorities for acquiring lands based on biological evaluation and with due consideration to location with respect to use demands and recreation potential.

Continue working toward defining the problem of developing suitable procedures for land acquisition. When the problem is well understood, the solutions will become apparent.

## WILDLIFE PROGRAM

1

The Wildlife Program has three categories: Big Game, Small Game, and Nongame. Included are 101 mammals and 345 birds. Of the mammals, 11 are legally defined as *game animals*, 1 as *wild buffalo*, 7 as *fur-bearing animals*, 4 as *predatory animals*, 74 as *nongame* and 2 are *endangered species*. The birds include 10 species of *upland game birds*, 73 species of *migratory game birds* (34 species of waterfowl legally hunted and 39 species are shorebirds not hunted) 253 *nongame* and 2 *endangered* bird species.

Hunting has been a traditional use of Montana's wildlife resource since before it changed from a means of survival to the major recreational activity it currently represents. The Department provides opportunity for sport hunting for that segment of the public that desires to hunt and harvest certain wildlife species for enjoyment. Under sustained yield management, biological surpluses of animal population are harvested each year and the remainder of the population is continuously available to the nonconsumptive user. The majority of wildlife species are not harvested -- yet they all have been protected and maintained by the sportsman's dollar. Hunting is also used as a management tool to control wildlife populations that are injurious to their habitat or to man's health or property. The rate of participation indicates the importance of hunting; in 1974 nearly 1 of 2 Montanans (age 15-65) and 31,400 nonresidents purchased a hunting license. More than 2.46 million days of hunting recreation were provided license holders in 1975 and over 2.85 million days are projected for 1980.

In facing the era ahead, of an increasing stress upon a decreasing resource base, the Department has five major options to accommodate increasing hunting pressure:

1. Maintain or increase the number of animals available through intensive management and/or protection of the habitat.
2. Regulate hunting in a manner that decreases hunting success.
3. Limit the number of participants.

4. Increase access to hunting areas not available to the public.
5. Implement a combination of the above four actions.

Recent surveys of over 5,000 households indicate nonconsumptive uses of wildlife in Montana are also of major importance -- 43 percent of Montanans (age 16-60) participated in wildlife viewing; 21 percent participated in wildlife photography; 34 percent of campers stated that the opportunity to observe wildlife was a major reason for camping. Non-consumptive recreational use of wildlife is expected to increase in importance.

The following definitions apply to terminology used frequently in the Wildlife Program segment of the Strategic Plan.

**GOAL:** A general statement indicating the ends toward which Department efforts are directed and indicating the philosophy and direction of a program.

**OBJECTIVE:** A more precise statement indicating specifically what the Department wants to make available, within a given time-frame, to the public in terms of recreation, annual harvests and/or accomplishments in resource protection. The 6-year objectives provide a target for program accomplishments.

**SUPPLY:** The estimated quantity of harvestable wildlife that can annually be cropped from a population or unit of area, under the management in effect. Supply is expressed either in quantities of harvestable animals and/or in terms of recreation (days) that would be provided, or both. The number of viewing days that could be provided without jeopardizing the welfare of the species.

**DEMAND:** Demand is the quantity of wildlife, that was, or is expected to be harvested by specific numbers of hunters under the management in effect. Demand is expressed either in quantities of harvestable animals or in terms of recreation (days) that would be provided, or both. The number of viewing days resulting from specific participation rates and circumstances.

**LICENSEE AFIELD:** One licensed person who participated in hunting, or if one person had two deer tags and hunted with both, he or she was two licensees afield.

**HUNTING SUCCESS:** The percent of licensees afield that harvest an animal, as determined by hunter questionnaire surveys.

**EFFORT:** The number of hunting days (generated by both successful and unsuccessful hunters) per animal harvested, under the management in effect.

**MANAGEMENT PARAMETERS:** The criteria used to describe results of past management or future objectives. Currently included are total harvest and associated recreation days resulting from a given hunting success and effort. Consideration of these combined criteria (and others) is necessary to provide description and/or standards to the process that provides a given volume of recreation days. Such criteria, plus additional that may be developed, are essential to preclude the possibility that unqualified volumes of recreation or any other product of management become an end point in themselves.

**WILDLIFE PROGRAM  
GOAL:**

Protect, perpetuate, maintain, enhance and regulate the wise use of Montana's wildlife for public benefit now and in the future.

**6-YEAR OBJECTIVE  
(1977-82)**

As expressed by Program Categories (Big Game, Small Game, and Nongame) in subsequent pages.



WILDLIFE PROGRAM  
BIG GAME STRATEGIC PLAN

3

This category of the Wildlife Program relates to 10 big game species: mule deer, white-tailed deer, elk, antelope, moose, bighorn sheep, mountain goats, black bear, grizzly bear and cougar. Big game hunting traditionally has been a major use of Montana's wildlife resource. In 1975 over 1.9 million days of big game hunting recreation and 111,500 harvested animals were provided to nearly 200,000 licensee holders. An indicator of its importance is that at least 1 in 3 Montanans (ages 12-65) currently participate in big game hunting. Between 1971 and 1973 the number of deer licensees afield increased from 171,000 to 220,000, or 29 percent, and decreased to 177,000 in 1975 when more stringent deer hunting regulations were imposed. Over 8,800 archers hunted big game in 1974.

The big game resource also provides an as yet undetermined

amount of nonhunting recreation through wildlife observation and photography. Local studies have indicated observation of big game on winter ranges is a popular activity in specific areas. Many hunters are also appreciative users of big game.

Future demand for big game hunting is expected to increase. Maintaining a sufficient, available supply of harvestable big game animals and effecting an equitable utilization of them will be a serious challenge in the face of decreasing and deteriorating habitat, an expanding human population, land use developments and tightening access to private and public lands.

The long term goal and 6-year objectives for big game and the major problems arising and suggested strategies needed follow. More specific details are included in subsequent segments on individual big game species presented on a regional and statewide basis. Big game archery hunting is summarized on page 15.

**BIG GAME GOAL:**

To maintain an available supply of big game to meet demand for all types of big game oriented recreation while insuring the protection and perpetuation of all big game species and their ecosystems.

**6-YEAR OBJECTIVE:  
(1977-82)**

To provide sufficient quantities of harvestable, available big game animals and their habitats to produce an average annual quantity of 2.1 million days of big game hunting recreation within stated management parameters; to seek solutions to open all pertinent public lands which exclude public access or big game oriented recreation; to strive to maintain reasonable public access to at least 70 percent of those private lands with big game; to increase the Commission-owned and controlled big game habitat by approximately 5,000 acres each biennium; and to assess the demand for other recreational uses of big game.

PROBLEMS

Increasing numbers of hunters and decreasing access to private and public lands are resulting in concentrations of hunting pressure that are locally excessive from the standpoint of: species population levels, landowner tolerance to hunters, and deterioration of the quality of the sport of hunting.

STRATEGIES

Regulate the distribution of hunters in time, space, numbers and locality to find and maintain the optimum levels of hunting pressure for the variable circumstances in individual hunting districts and regions. Improve the identification of public-private land ownership and availability of public access routes. Increase the capability and effectiveness of field personnel monitoring hunting pressure and assisting landowners and hunters during the Fall. Continue to emphasize the importance of good hunting ethics and the need to respect private property. Recognize that methods are needed to make public hunting an economic benefit to private landowners rather than an undesirable and costly activity. More specific strategies are included in mule deer, whitetail and antelope segments.

(continued)

## BIG GAME STRATEGIC PLAN STATEWIDE (continued)

PROBLEMS

The carrying capacity of big game habitat is declining due to the encroachment, intensification, and development of various land use practices and due to natural changes in vegetation (forest succession). Heavy livestock grazing on rangelands and unwise timber management practices have been and are deteriorating big game habitat over extensive areas. Energy and mining developments are destroying habitat in specific localities and threaten extensive areas of important big game habitat. Subdivision of big game ranges, especially foothill winter range areas, are particularly damaging to mule deer.

Increasing demands are expected for hunting big game and for appreciative uses.

More basic knowledge is needed on all big game species and their ecology, population status and trends, distribution, factors influencing reproduction, survival and mortality rates, and competition between big game species.

Large segments of the public are uninformed or are unappreciative for the needs of big game species, the rationale for hunting, and overall big game management problems. Lack of respect for regulations and illegal hunting by even a small minority reduce public opportunity for big game recreation and provide incidents to incite anti-hunting feelings.

(Specific problems and strategies are discussed by big game species and Fish and Game Regions on subsequent pages.)

STRATEGIES

Continue to identify important big game habitat and increase participation in local, state and federal land use planning and strive for adequate consideration for big game species' needs. Inform the public, other agencies and land users of those developments, practices and human activities that are detrimental, or beneficial, to big game populations and habitat. Enter into litigation on key court cases affecting land use decisions. Continue field studies to improve knowledge of big game species' life requirements. Ascertain and monitor the impact of man-caused and natural changes in ecosystems that big game are dependent upon. Acquire key big game habitat areas where feasible.

Implement means by which big game hunting and other recreational opportunities can be provided to an increasing number of people without lowering the quality and diversity of the recreation. Emphasize the recreational aspects of hunting and keep the public informed about the problems, needs and outlook for maintaining adequate big game supplies. Provide additional recreational opportunity and diversity by encouraging a wide variety of methods and types of hunting and appreciative uses. Improve the effectiveness of law enforcement in preventing illegal harvests of big game.

Improve methods and increase efforts to monitor big game populations and trends over extensive areas. Continue intensive long-term research on population dynamics, habitat requirements, and influences of land uses, hunting, species competition and predation. Inform the public of big game goals, objectives and actions needed.

Continue educational efforts and seek improved means to improve public support and understanding for: the ecological needs of big game; the role of hunting; the need for, and increasing costs of, big game management practices; and the need for respect for regulations.

## BIG GAME - ARCHERY HUNTING

Archery is a method of hunting that provides diversity and a high degree of quality recreational opportunity. Interest in archery hunting for big game has grown rapidly in recent years. In 1953, only 535 archer licenses were sold; this increased to 2,270 in 1963, peaked at 10,342 in 1973, declined to 7,665 in 1976.

Special early archery seasons for deer, elk and antelope during portions of September and October provide recreation for archery enthusiasts prior to the general big game hunting season. This serves to distribute hunters in time and space and to minimize conflicts between types of hunters concurrently in the field. Unsuccessful archers can continue to hunt big game during the regular big game season.

Of nearly 8,000 big game archers afield in 1975, 90 percent reported they hunted deer, 67 percent hunted elk and 6 percent hunted antelope. In 1975, 76 percent of the deer archers did their hunting in Regions 1, 2, 3 and 4 where they took 59 percent of the statewide archer deer harvest. Archer deer hunting success in 1975 averaged 11 percent statewide and ranged from a low of 6 percent in Region 1 to as high as 30 percent in Region 7.

Past, current and projected management parameters for big game archery (deer, elk and antelope) follow. The projected harvest and archer hunting days for 1980 are additional to those proposed in individual big game species on subsequent pages.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIG GAME ARCHERY HUNTING

Year	No. Licenses Sold	Total Archers Afield	DEER					ELK					ANTELOPE				
			Harvest	Archers Afield	Hunting Success	Hunting Days	Effort	Harvest	Archers Afield	Hunting Success	Hunting Days	Effort	Harvest	Archers Afield	Hunting Success	Hunting Days	Effort
							Hunted Per Deer (Harvested)					Hunted Per Elk (Harvested)					Hunted Per Antelope (Harvested)
1971	5,370	4,516	593	4,066	15%	23,176	39	57	2,208	3%	10,156	178	20	236	8%	826	41
1972	6,579	6,579	511	4,794	11%	29,722	58	122	2,966	3%	15,423	126	23	425	5%	1,487	64
1973	10,342	8,052	711	7,162	10%	41,539	58	111	4,926	2%	22,659	204	52	489	11%	1,711	33
1974	10,134	8,832	663	7,965	8%	43,011	65	81	5,636	1%	27,616	341	25	489	5%	1,711	68
1975	9,296	7,972	805	7,202	11%	39,611	49	175	5,344	3%	28,323	162	85	508	17%	1,778	21
1976	7,665	6,817	486	6,000	8%	37,800	78	198	4,928	4%	29,562	149	60	474	13%	1,516	25
1980	11,000	10,000	850	8,500	10%	46,750	55	180	6,000	3%	31,500	175	60	600	10%	2,100	35
1985	12,000	11,000	940	9,400	10%	51,700	55	200	6,600	3%	35,000	175	66	660	10%	2,300	36
1990	13,000	11,700	1,000	10,000	10%	55,000	55	210	7,000	3%	36,800	175	70	700	10%	2,500	35



# MULE DEER STRATEGIC PLAN - STATEWIDE

7

## SUPPLY AND DEMAND

Mule deer are widely distributed over extensive areas of Montana, occurring at some time of the year on 119,380 sq. miles, or 91 percent of the state (excluding National Parks and Indian reservations). Landownership status where mule deer occur is 38 percent public, 6 percent state and 56 percent private. About 50 percent of the mule deer harvest is estimated to come from private and state school lands. Except west of the Divide, most state land is in school trust status with public access at the discretion of the private lessee. In 1975, it was estimated that about 40 percent of private land with mule deer was closed or severely restricted to public hunting for deer. The extent of mule deer distribution and public/private landownership status where mule deer occur is presented by 7 Fish and Game Regions in Figure 1.

Mule deer populations peaked at high levels during the 1950's and early '60's causing deterioration of winter ranges in many areas of the state. Populations have recently been in various stages of decline in Montana and over extensive areas of other western states.

Mule deer have been the most sought after big game animal in terms of numbers of hunters afield and annual harvests. During the 1955 to 1970 period, estimated statewide harvests varied from 66,000 to 104,000 mule deer annually, which with whitetail harvests, often provided 80-90 percent hunting success for 100,000 to 130,000 individual deer hunters.

A peak number (220,000) of deer hunters afield (1 tag = 1 hunter) was reached in 1973. Under the more liberal management then in effect, hunting demand began to exceed the available supply of harvestable mule deer. By 1974, it became apparent that mule deer numbers were declining in many parts of Montana

and throughout the western states (including areas where hunting was not a factor). Various factors were rapidly reducing the availability of private land for deer hunting. In 1975 more stringent harvest regulations were set for mule deer and legislative action increased the price of deer licenses; a significant reduction in hunters afield resulted. Buck-only hunting seasons were predominant in 1976.

Attainment of objectives by 1980 will depend upon the success in finding solutions to the major statewide problems that follow, and regional problems. Major changes in the current deer management framework will be necessary; this will require the understanding and cooperation of landowners, hunters and the general public.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
1971	86,500	126,500	68%	648,000	8
1972	84,200	140,400	60%	759,000	9
1973	98,700	158,600	62%	872,400	9
1974	73,700	140,500	52%	877,000	12
1975	49,000	111,900	44%	677,200	14
1976	27,000	71,200	38%	503,000	19
1980	58,000	116,000	50%	685,000	11
1985	58,000	120,000	48%	730,000	13
1990	58,000	128,000	45%	828,000	14

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer in harvest

<sup>3</sup>Total deer licenses afield x percent mule deer in total harvest

STATEWIDE GOAL:	To protect and perpetuate mule deer and their habitat and to increase the supply of available, harvestable mule deer to meet demands for hunting and nonhunting recreation.
6-YEAR OBJECTIVE: (1977-82)	To provide 685,000 days of mule deer hunting annually at a hunting success rate of 50 percent and an average hunting effort of 11 days per mule deer harvested by 1980.

(continued)

## MULE DEER STRATEGIC PLAN - STATEWIDE (continued)

PROBLEMS

Accelerating closure or restriction of private land is removing extensive deer hunting areas from access by the public.

Available supplies of harvestable mule deer are currently not adequate to meet the increased hunting demands demonstrated during the circumstances and management in effect in the early 1970's.

Habitat carrying capacity for mule deer is deteriorating due to a variety of land-use practices, competition with elk, and past over-use by mule deer.

More basic knowledge is needed about mule deer ecology, population dynamics, distribution and factors influencing reproduction, survival and mortality rates.

STRATEGIES

Implement an extensive effort of contact with pertinent landowners to identify the basic reasons for closure and ascertain the conditions necessary to maintain or restore a reasonable degree of public access for hunting. Implement means to control the number and distribution of deer hunters in time and space. Continue to emphasize the importance of good hunting ethics and respect for private property. Improve access to public lands by (a) purchasing and/or leasing easements through private lands, and (b) seeking the cooperation of public and private land managers to improve signing and provision of maps designating public roads and public-private land ownership. Provide and implement specific area plans for managing and supervising deer hunting on private lands. Explore methods to provide improved economic inducement for private lands to accommodate public hunting. Where private land predominates, implement harvest objectives and seasons that aim toward a relatively high hunter success and low effort (days afield per deer harvested) and stress controlled participation and distribution of hunters. Support legislation to improve control of distribution of nonresident deer hunters.

Continue conservative regulations with reduced harvests until refined, intensive management can provide the means and justification to increase utilization of the supply of harvestable mule deer. Regional mule deer management efforts and statewide mule deer research are being intensified. Where feasible, divert demand from hunting mule deer to whitetails by providing increased incentive and opportunity for whitetail hunting. Seek public cooperation and understanding for the outlook for mule deer and mule deer hunting.

Identify key mule deer habitat stress and strive to protect them against over-grazing, unwise timber management practices, subdivision development, highway construction, energy and mining developments, and other man-caused activities that remove or deteriorate mule deer habitat. Continue sustained yield management to strive to maintain mule deer herd levels within limitations of their habitat. Identify conflicts with elk management on specific areas to the public and seek proper management solutions. Seek means to improve mule deer habitat. Support legislation that protects wildlife habitat.

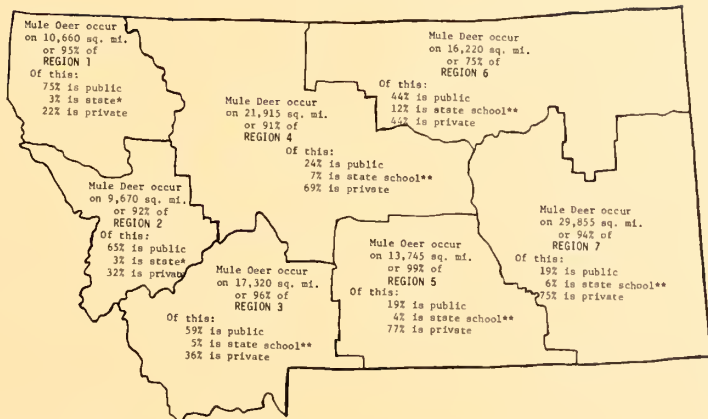
Improve methods of determining and monitoring mule deer populations and trends over extensive areas and various habitat types. Continue intensive, long-term research on population dynamics, habitat requirements, and influences of land uses, hunting and predation. Modify hunter questionnaire to provide specific information on hunter success and effort for mule deer.

(More specific problems and strategies in Regions follow.)

Fig. 1

MULE DEER DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)

9



<sup>1</sup>Distribution includes all area where species is present at some time of the year; thus it tends to be a maximum inclusion of area the species inhabits, including marginal habitat with low population densities of the species.

\*includes state forestry land open to public.

\*\*State school land -- access dependent on private leasee.

## MULE DEER STRATEGIC PLAN - REGION 1

SUPPLY AND DEMAND

Mule deer occur on 95 percent (10,660 sq. miles) of Region 1's land area<sup>1</sup>, which is 9 percent of this species' statewide distribution area. In this region 78 percent of the mule deer distribution area is in public ownership (primarily U.S.F.S.); 22 percent is privately owned. About 80 percent of the mule deer harvest comes from public land. Most of the mule deer area on private land is open to hunting.

Mule deer populations are reported to be stable in Region 1. Productivity rates are fair to poor.

Region 1 has 12.3 percent of the state's human population and had 9 percent of the total deer hunters reported statewide during 1971-74. The number of all deer licensees afield in Region 1 increased from 17,325 in 1971 to 22,566 in 1973 with an average of nearly 20,000 deer licensees afield annually during 1971-74 and 1975. An average of 1,800 mule deer were harvested annually during the 1971-74 management period and comprised 21 percent of the region's total deer harvest and 2 percent of the statewide mule deer harvest.

Attainment of future objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.					
1971-74	1,800	4,180	42%	34,000	19
1975	1,600	5,600	28%	43,000	27
1976	1,300	5,000	26%	42,000	32
1980	1,800	5,500	33%	47,000	26
1985	1,800	6,000	30%	50,000	28
1990	1,800	6,600	27%	57,600	32

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent mule deer in harvest

6-YEAR OBJECTIVE (1977-82): To provide 47,000 days of mule deer hunting annually at a hunting success rate of 33 percent and an average hunting effort of 26 days/mule deer harvested by 1980.

PROBLEMS

The quality and quantity of mule deer habitat is influenced both by a closing forest canopy and by timber management practices.

Management practices for elk may not be beneficial to mule deer.

Based on past experience, some hunters will be expecting a higher success and lower rate of effort.

Mule deer winter ranges and population reproductive rates remain poor over much of the region. In many areas mule deer are not as easily hunted as whitetails during regular big game season.

STRATEGIES

Find means to effectively influence timber management decisions on public and private forests to consider mule deer habitat requirements. Logging alone is often not adequate to restore or enhance mule deer habitat being lost to forest succession. Seek use of more beneficial habitat management practices.

Determine specific areas of conflict, establish priorities, and modify management as feasible.

Inform the public as to the future outlook for mule deer hunting in Region 1, and what to expect for average hunting success.

Find means to obtain public acceptance for late seasons with special permits to control populations in specific areas.

<sup>1</sup>Not including Indian reservations and National Parks.

(continued)



PROBLEMS

Subdivision developments, in some areas, are encroaching on spring range important to mule deer.

Oil, gas and mineral exploration and associated road-building and increased human activity will deteriorate mule deer habitat.

STRATEGIES

Identify important mule deer habitat and current and potential conflict areas to land use planners and developers. Oppose degradation of deer habitat. Support legislation that protects wildlife habitat from subdivision development.

Identify important mule deer habitat and conflict areas and seek cooperation to protect deer habitat and minimize degradation. Eliminate or curtail use of expanded road systems that do develop.

## MULE DEER STRATEGIC PLAN - REGION 2

SUPPLY AND DEMAND

Mule deer occur on 92 percent (9,673 sq. miles) of Region 2's land area<sup>1</sup>, which is 8 percent of this species' statewide distribution area. In this region, 68 percent of the mule deer distribution area is in public ownership (primarily U.S.F.S.); 32 percent is privately owned. About two-thirds of the mule deer harvest comes from public land. Most of the mule deer area on private land is open to hunting, particularly the corporate-owned forest land.

Mule deer populations are reported as stable on 35 percent of the region's hunting districts, decreasing on 50 percent and undetermined on the remainder. Productivity is fair to poor over much of the region.

Region 2 has 15.3 percent of the state's human population and had 11 percent of the total deer hunters reported afield statewide during 1971-74. The estimated number of all deer licenses afield in Region 2 ranged from 20,200 in 1971 to 27,200 in 1973 with an average of 23,400 deer licenses afield annually during 1971-74. An average of 5,200 mule deer were harvested annually during the 1971-74 management period and comprised 65 percent of the region's total deer harvest and 6 percent of the statewide mule deer harvest. Attainment of future objectives will depend upon success in solving problems listed below.

**6-YEAR OBJECTIVE (1977-82):** To provide 129,000 days of mule deer hunting annually at a hunting success rate of 25 percent and an average hunting effort of 28 days/mule deer harvested by 1980.

PROBLEMS

The quality and quantity of mule deer habitat is influenced both by a closing forest canopy and by timber management practices.

Land development and other use practices are reducing the amount and quality of deer habitat.

Management practices for elk may be detrimental to mule deer. High elk populations will reduce mule deer populations where a common winter range must be shared.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.	5,200	15,200	35%	108,000	20
1971-74	4,000	17,400	23%	116,000	29
1976	2,600	14,500	18%	110,200	42
1980	4,600	18,400	25%	129,000	28
1985	4,600	20,000	23%	138,000	30
1990	4,600	21,600	21%	156,000	34

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licenses afield x percent mule deer in harvest

STRATEGIES

Find means to effectively influence timber management decisions to consider mule deer habitat requirements.

Acquire control by purchase, lease or agreement, of important deer ranges. Promote land-use planning, zoning and legislation which would protect important deer ranges from subdivision, mining, excessive grazing, poorly planned timber harvest, or other damaging development.

In some areas long seasons are necessary to adequately harvest elk; and deer may be over-harvested in the process. Here the strategy would be to restrict deer hunting regulations to prevent over-harvest. Land treatment which would reduce browse and increase grass is favorable to elk (at least in low snow-depth areas) and detrimental to deer, and should be avoided if the objective is to increase deer. Restrictive elk hunting regulations may allow elk to become so numerous they reduce deer populations through competition, so here the strategy would be to achieve adequate elk harvests through more liberal regulations.

<sup>1</sup>Not including Indian reservations and National Parks.

(continued)

PROBLEMS

Decreased habitat security due to extensive forest road building and greatly increased numbers of hunters have caused excessive pressure on mule deer in some areas.

Winter browse is not adequate to support the desired deer population. Considerable improvement in browse condition has occurred as a result of lower deer populations, but there are still areas in poor condition, and a moderate increase in the deer population can be expected to reverse the improving trend.

Increased efforts are needed to manage mule deer and whitetails as separate species.

STRATEGIES

Keep new roads to low standards and close them after the need for them no longer exists.

Insist that public land managers close existing roads where such closures would protect important areas of deer habitat from too-easy access.

Establish walk-in hunting areas within which no vehicle traffic is allowed.

Use restrictive hunting regulations to increase deer numbers in areas where browse is in good condition and lightly used, but liberalize them when the population reaches carrying capacity.

Be prepared to accept occasional moderate deer losses and heavy browse use during severe winters as consequences of maintaining higher deer populations.

Educate hunters to be satisfied with a low rate of hunting success, since the range won't support enough deer to supply a high rate of success to current number of hunters.

Adjust hunter questionnaire to provide specific information on hunting success and effort by separate species.

## MULE DEER STRATEGIC PLAN - REGION 3

SUPPLY AND DEMAND

Mule deer occur on 96 percent (17,318 sq. miles) of this Region's land area<sup>1</sup>, which is 14.5 percent of this species' statewide distribution area. In this Region, 59 percent of the mule deer-inhabited area is in public ownership (primarily U.S.F.S.); 5 percent is on state school lands and 36 percent is privately owned. About 40 percent of private land is closed or severely restricted to public hunting. Public land provides about 70 percent of mule deer harvest.

Mule deer populations are declining on 80 percent of the Region's hunting districts and stable on most of the remainder. Productivity is fair to poor in a majority of hunting districts.

Region 3 has 15.2 percent of the state's human population and had 17 percent of the total deer hunters reported afield statewide during 1971-74. The number of all deer licenses afield in Region 3 increased from 30,780 in 1971 to 39,630 in 1973 with an average of 35,800 deer licenses afield annually during 1971-74. An average of 15,400 mule deer were harvested annually during the 1971-74 management period and comprised 94 percent of the Region's combined mule deer and white-tailed deer harvest and 17 percent of the statewide mule deer harvest. The peak harvest was 18,200 in 1973; the low 4,600 in 1976.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82): To provide 204,000 days of mule deer hunting annually at a hunting success rate of 30 percent and an average hunting effort of 21 days/mule deer harvested by 1980.

PROBLEMS

Mule deer winter ranges are in poor condition over much of the region due to past over-populations, resulting in poor fawn production and survival. Substantial winter kill periodically occurs in many areas.

Disproportionate hunting pressure occurs on various herds and herd segments, resulting in local over-harvests and concentrations of hunters in some areas and lack of sufficient harvest in others.

Mule deer may not be able to compete well with elk under certain circumstances and management emphasis.

Mule deer have been neglected in management emphasis because of high demands associated with elk management.

Knowledge is lacking as to how to maintain or improve mule deer habitat.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.					
1971-74	15,400	33,700	46%	194,000	13
1975	7,500	28,100	27%	182,200	24
1976	4,600	20,900	21%	155,000	36
1980	9,700	32,300	30%	204,000	21
1985	9,700	34,800	28%	223,000	23
1990	9,700	36,500	26%	252,000	26

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licenses afield x percent mule deer in harvest

STRATEGIES

Manage on a sustained yield basis to strive to maintain herd levels within limitations of winter range. Identify variations in mule deer habitat and their different potential to sustain populations and harvest levels.

Implement means to limit hunting pressure where necessary and to better distribute it by time, space, and consideration for degrees of habitat security and access.

Ascertain specific areas that this is true, determine what management changes are necessary and feasible, and present the alternatives to the public.

Establish management priorities based on local land capability, species needs, and consideration for public demand and allocate time and funds accordingly.

Continue field studies on mule deer life requirements, population dynamics, and effects of habitat modification (such as burning, cutting and controlled grazing).

<sup>1</sup>Not including Indian reservations and National Parks.

SUPPLY AND DEMAND

Mule deer occur on 91 percent (21,915 sq. miles) of Region 4's land area<sup>1</sup>, which is 18 percent of this species' statewide distribution area. In this Region, 24 percent of the mule deer distribution area is in public ownership (primarily U.S.F.S.); 7 percent is on State school land and 69 percent is privately owned. Nearly 60 percent of the private (and state) land is closed or severely restricted for hunting. About 54 percent of the mule deer harvest comes from public land.

Mule deer populations are reported to be declining on 60 percent of the Region's hunting districts, stable on 25 percent, increasing on 6 percent and undetermined on remainder. Productivity is fair to poor on a majority of the hunting districts.

Region 4 has 24.7 percent of the state's human population and had 20 percent of the total deer hunters reported afield statewide during 1971-74. The number of all deer licensees afield in Region 4 increased from 40,756 in 1971 to 47,008 in 1973 with an average of 42,300 deer licensees afield annually during 1971-74. An average of 15,400 mule deer were harvested annually during the 1971-74 management period; this comprised 72 percent of the Region's combined mule deer and white-tailed deer harvest and 18 percent of the statewide mule deer harvest. The peak harvest of 19,883 was in 1971; the lowest was 7,100 in 1975.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82)	To provide 90,000 days of mule deer hunting annually at a hunting success rate of 50 percent and an average hunting effort of 9 days/mule deer harvested by 1980.
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PROBLEMS

Current trend is toward accelerated closure of private land to hunters.

STRATEGIES

Determine by hunting district the amount and location of lands open, closed and restricted to mule deer hunting and why. Control the number and distribution of mule deer hunters by: habitat type based on vegetation, topography and mule deer biology; some sort of permit system that will allow landowners to also hunt may be feasible; and establishing and implementing management plans for private lands using above methods. Gain access to public lands by purchasing and/or leasing easements through private lands. Explore methods to reimburse the private landowner for use of his land by the hunters, and not excluding idea that a person using the public land for grazing at reduced fees also owes something to general public, including hunting public. (Idea of payment to counties through a percent of hunting license or as Region 7 suggests, through a special stamp, should be explored.

(continued)

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

Aver.	Mule Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
1971-74	15,400	30,470	51%	136,000	9
1975	7,100	21,400	33%	108,000	15
1976	8,159	21,000	39%	110,400	13
1980	10,000	20,000	50%	90,000	9
1985	10,000	21,300	47%	100,000	10
1990	10,000	22,400	46%	111,000	11

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent mule deer in harvest

<sup>1</sup>Not including Indian Reservations and National Parks.

## MULE DEER - REGION 4 (continued)

PROBLEMS

Intensified demand in the face of declining mule deer numbers will require intensive, refined management by habitat type to achieve and maintain a maximum supply available for hunting.

Mule deer seasons are currently established on a regional basis with little regard toward a statewide goal.

The public lacks awareness of the overall factors influencing the status of deer and future management problems.

Federal and private land managing agencies are altering habitat.

Coyote predation on deer.

Types and combinations of seasons may exert excessive hunting pressure on mule deer in some units.

STRATEGIES

Determine habitat types from ERTS photos and other sources. Determine the biological supply of mule deer by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys will be employed as well as other methods such as population modeling and thermal infrared censusing as they apply. Evaluate land use practices as they affect deer populations in specific areas. Study effects of increasing elk populations on mule deer populations in specific areas. Establish hunting district boundaries and seasons based on vegetation, topography and mule deer biology.

Implement statewide comprehensive planning which provides a statewide goal and regional objectives for mule deer.

Through intensified use of the various media, make the public aware of the problems and the methods being employed to combat them. Includes the whole bit on biology of deer and its habitat, landowner-sportsmen problems, and the future outlook for deer hunting in Region 4.

Intensify efforts to more effectively control programs that adversely affect habitat through closer contact with respective agencies and make public aware of happenings. Promote land use planning to protect important mule deer areas.

Where it is established that coyotes are in effect, reducing deer populations significantly or slowing the increase of populations significantly, then instigate some control techniques, including legalizing poisons for use under strict controls.

In areas where there are general either-sex deer seasons combined with elk seasons, may have to alter deer seasons to protect them if harvest is too great. Restrict harvest in those areas where mule deer are most vulnerable to hunting.

# MULE DEER STRATEGIC PLAN - REGION 5

17

## SUPPLY AND DEMAND

Mule deer occur on 99 percent (13,745 sq. miles) of Region 5's land area<sup>1</sup>, which is 12 percent of this species' statewide distribution area. In this region, only 19 percent of the mule deer distribution area is in public ownership (primarily U.S.P.S. and S.L.M.); 4 percent is State school land and 77 percent is privately owned. About 50 percent of private land is closed or severely restricted to public hunting for mule deer. Nearly 70 percent of mule deer harvest comes from private land.

Mule deer populations are reported to be stable on 50 percent of the region's hunting districts and declining on the remainder. Productivity varies between poor and good and is undetermined in a few districts.

Region 5 has 17.2 percent of the state's human population and had 13 percent of the total deer hunters reported statewide during 1971-74. The number of all deer licensees afield in Region 5 increased from 24,218 in 1971 to 32,044 in 1973 with an average of 28,200 deer licensees afield annually during 1971-74, and 22,300 in 1975. An average of 15,000 mule deer were harvested annually during the 1971-74 management period and comprised 90 percent of the region's combined mule deer and white-tailed deer harvest and 17 percent of the statewide mule deer harvest. A peak harvest of 17,156 occurred in 1973; the low was 3,578 in 1976.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82)	To provide 64,000 days of mule deer hunting annually at a hunting success rate of 50 percent and an average hunting effort of 8 days/mule deer harvested by 1980.
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## PROBLEMS

About two-thirds of the mule deer harvest has been from private land. Means are needed to maintain and increase public access to private lands and to avoid hunter concentrations that exceed landowner tolerance.

Mule deer winter range is in poor condition in many areas and reproductive rates are low.

Land use practices such as subdivisions, overgrazing and sagebrush control are deteriorating mule deer habitat.

Poor hunter ethics by a small minority continue to hamper landowner relationships.

<sup>1</sup>Not including Indian reservations and National Parks.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.					
1971-74	15,000	25,400	59%	102,000	7
1975	6,500	17,600	37%	73,000	11
1976	3,578	9,762	37%	47,700	13
1980	8,000	18,000	50%	64,000	8
1985	8,000	18,000	44%	72,000	9
1990	8,000	20,000	40%	80,000	10

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes a portion of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent mule deer in harvest

## STRATEGIES

Assign more personnel to make contacts with landowners and seek agreements for management of hunters. Identify hunter concentration areas, and as necessary, increase enforcement, modify season lengths, control hunting pressure by permits and work closely with landowners to keep open or reopen closed lands, including recognition of leasing hunting rights.

Continue sustained yield management to keep deer population levels within limits of winter range.

Identify key habitat areas and encourage land managers to protect against sagebrush control and over-use by livestock. Advise planners and land developers on locations of key habitats. Purchase key land tracts where feasible.

Encourage all hunters to consider rights of landowners and to assist policing their ranks against incidents that alienate landowners.

(continued)

PROBLEMS

Disproportionate hunting pressure occurs on various herds and herd segments, resulting in excessive hunter concentrations in some areas and less than potential harvest in others.

Improved information is needed on mule deer populations, seasonal distribution, productivity, etc. in various hunting districts.

STRATEGIES

Control distribution of hunting pressure through a permit system that could minimize concentrations and disperse them better in time and available space to hunt.

Assign more personnel and work priorities to systematically improve mule deer information in specific districts.



## MULE DEER STRATEGIC PLAN - REGION 6

SUPPLY AND DEMAND

Mule deer occur over 75 percent (16,217 sq. miles) of Region 6's land area<sup>1</sup>, which is 14 percent of this species' statewide distribution area. In this region, 44 percent of the mule deer-inhabited area is in public ownership (primarily B.L.M.); 12 percent is on State school land, and 44 percent is privately owned. Only about 15 percent of private and school land is closed or severely restricted to mule deer hunting. About 61 percent of the mule deer harvest comes from public land.

Mule deer populations are reported to be declining on 75 percent of the region's hunting districts and stable on the remainder. Productivity varies between good and fair in different districts.

Region 6 has 9.5 percent of the state's human population and had 9 percent of the total deer hunters reported afield statewide during 1971-74. The number of all deer licensees afield in Region 6 increased from 17,958 in 1971 to 23,208 in 1973 with an average of 20,500 deer licensees afield annually during 1971-74. An average of 5,300 mule deer were harvested annually during the 1971-74 management period comprising 45 percent of the region's combined mule deer and white-tailed deer harvest and 6 percent of the statewide mule deer harvest.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82)

To provide 47,000 days of mule deer hunting annually at a hunting success rate of 45 percent and an average hunting effort of 10 days/mule deer harvested by 1980.

PROBLEMS

Energy developments and intensified agriculture destroy mule deer habitat and result in increased hunting pressure on the remaining areas.

Improved information is needed on mule deer populations, productivity rates, seasonal distribution, etc. in various hunting districts. Mule deer and white-tails need to be managed as separate species.

Region 6 has a diverse mixture of Federal, state and private lands; expected increase in hunting pressures will have to be optimally distributed to prevent private land closures.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.					
1971-74	5,300	9,100	58%	37,000	7
1975	2,862	6,300	47%	26,000	9
1976	2,762	5,400	51%	22,900	8
1980	4,700	10,400	45%	47,000	10
1985	4,700	11,000	43%	47,000	10
1990	4,700	12,000	39%	51,700	11

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes a portion of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent mule deer in harvest

STRATEGIES

Identify and map key mule deer areas and seek means to protect them from degradation.

Direct and coordinate efforts of all regional personnel, and if necessary, assign additional biologists to improve mule deer information in specific hunting districts. Modify hunter questionnaire to obtain specific information by both deer species.

Improve mapping and signing to identify access routes to public land and to minimize pressure on private land problem areas. Identify mule deer habitat on state lands and strive for means to allow and/or maintain public access. As necessary, limit the number of hunters using specific areas.

<sup>1</sup>Not including Indian reservations and National Parks.

## MULE DEER STRATEGIC PLAN - REGION 7

SUPPLY AND DEMAND

Mule deer occur on 94 percent (29,853 sq. miles) of this region's land area<sup>1</sup>, which is 25 percent of this species' statewide distribution area. Only 19 percent of the mule deer-inhabited area is in public ownership (primarily U.S.F.S. and B.L.M.), 6 percent is on state school land and 75 percent is privately owned. About 50 percent of private and state land is closed or severely restricted to mule deer hunting. About 67 percent of the mule deer harvest is on private land.

Mule deer declined to a low point in 1975; their populations are now increasing in all hunting districts in Region 7.

Region 7 has 5.8 percent of the state's human population and had 21 percent of the total deer hunters reported afield statewide during 1971-74. The number of all deer licensees afield in Region 7 increased from 33,755 in 1971 to 51,239 in 1974 with an average of 44,250 deer licensees afield annually during 1971-74. An average of 27,400 mule deer were harvested annually during the 1971-74 management period and comprised 79 percent of the region's total deer harvest and 32 percent of the statewide mule deer harvest.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82) To provide 100,000 days of mule deer hunting annually at a hunting success rate of 80 percent and an average hunting effort of 5 days/mule deer harvested by 1980.

PROBLEMS

Private land has been providing about two-thirds of the mule deer harvest but the current rate of private land closure or restriction is rapidly removing extensive hunting area from access by the general public. Mule deer have sometimes been overharvested in areas of hunter concentrations in accessible deer habitat.

<sup>1</sup>Not including Indian reservations and National Parks.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MULE DEER<sup>1</sup>

	Mule Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	Mule Deer Hunting Recreation Days	Effort (Days Hunted Per Mule Deer Harvested)
Aver.					
1971-74	27,400	35,000	78%	134,000	5
1975	19,000	30,800	62%	122,000	6
1976	4,206	7,400	57%	32,665	8
1980	20,000	26,000	80%	100,000	5
1985	20,000	26,700	75%	100,000	5
1990	20,000	28,000	71%	120,000	6

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent mule deer in harvest

STRATEGIES

Determine by hunting district, the amount and location of lands open, closed and restricted to mule deer hunting and why. Control the number and distribution of mule deer hunters by: (1) habitat type based on vegetation, topography, and mule deer biology; (2) permits similar to antelope; and (3) establishing and implementing management plans for private lands to accommodate hunting (example: currently a 420+ section single land holding in Region 7 has a prescribed management plan for antelope where the department agrees to: (1) determine the number and distribution of antelope; (2) recommend the number and distribution of hunters to accomplish the desired harvest; and (3) provide supervisory assistance during the hunting season). Gain access to sizable public land holdings where deer occur by purchasing and/or leasing easements through private lands and implementing existing plans, i.e. the S-60 program, with state and Federal land managers. Provide financial inducement on an area basis (i.e. counties) from sportsmen via a "country damage stamp" which: (1) yields an economic gain to the area; (2) insures re-imbursement of property loss to individual landowners resulting from hunting; (3) represents a positive acceptable action from sportsmen; and (4) obligates the state to initiate and regulate the means of opening private land to hunting.

(continued)

PROBLEMS

Since 1970, the demand for deer in Region 7, as indicated by the numbers of hunters, has increased by 123 percent while the number of mule deer has declined. Intensified demand in the face of declining numbers will require intensive refined management by habitat type to achieve a maximum supply.

The existing nonresident license structure of four specific types (B5, B7, B8 and B10) prohibits desired control by hunting district.

Mule deer seasons are currently established on a regional basis with little if any consideration toward a statewide goal, consequently a variety of intersecting recommendations result.

Intensified agricultural and energy developments are deteriorating mule deer habitat. Heavy grazing, brush control, extensive cultivation and vegetation removal, coal stripping, and other activities are destroying and/or deteriorating the quality of deer habitat.

STRATEGIES

Determine, by topographic and vegetation similarities, habitat types from ERTS and infrared photos and geological survey maps.

Determine the biological supply of mule deer by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys, population modeling, thermo infrared censusing and specific research will be employed.

Establish hunting district boundaries and seasons based on vegetation, topography, mule deer biology and landowner considerations. Modify hunter questionnaire to obtain specific information on hunter success and effort for mule deer.

Introduce legislation to pattern the nonresident license structure after the resident.

Implement and support statewide comprehensive planning which provides a statewide goal and regional objectives for mule deer.

Identify key mule deer habitat areas and encourage public agencies and private landowners to protect them from degradation. Promote land use planning and land management practices that will protect or enhance deer habitat and provide guidelines for minimizing or eliminating the effects of detrimental land use practices.



## WHITE-TAILED DEER STRATEGIC PLAN - STATEWIDE

SUPPLY AND DEMAND

White-tailed deer are widely distributed in Montana, but over less extensive areas than mule deer. Whitetails occur on 38,356 sq. miles, or 29 percent of the state (excluding National Parks and Indian Reservations). Landownership status where whitetails occur is 32 percent public, 65 percent private and 3 percent state school lands. About a third of private land with whitetails was estimated to be closed or severely restricted to public hunting in 1975. Slightly more than 75 percent of the whitetail harvest is estimated to come from privately controlled lands. Figure 2 indicates whitetail distribution and landownership by regions.

Whitetails have gradually extended their range throughout most of the drainages of Montana that have tree and/or brush cover and they also are present in foothill habitat of most mountain ranges.

Whitetail populations appear to be stable or increasing in many areas east of the Divide, and are stable or decreasing west of the Divide.

During 1965-74, whitetails comprised between 25 and 29 percent of the statewide deer harvest. This percentage rose to 37 percent in 1975 with the declining mule deer harvest.

The supply of whitetails currently exceeds the demand. Increasing demand is expected and attainment of 1980 harvest objectives will be dependent on the availability of whitetails on private land. Major changes in the current deer management framework and success in solving problems listed below will be necessary to attain 1980 objectives. Increased emphasis on whitetail management in specific areas is expected.

STATEWIDE GOAL:	To protect and perpetuate white-tailed deer and their habitat and to maintain sufficient quantities of available, harvestable whitetails to meet demands for hunting and nonhunting recreation.
6-YEAR OBJECTIVE: (1977-82)	To provide annually 461,000 days of whitetail hunting at a hunting success rate of 50 percent and an average hunting effort of 11 days/white-tailed deer harvested by 1980.

PROBLEMS

Whitetail habitat is deteriorating due to expansion of man's activities, including dams, subdivisions, intensifying agriculture and forest management.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
1971	30,200	44,500	68%	227,600	8
1972	28,800	49,000	60%	266,700	9
1973	38,700	61,600	62%	331,800	9
1974	30,000	57,300	52%	358,200	12
1975	28,500	65,700	44%	391,800	14
1976	16,000	43,640	38%	308,000	19
1980	40,000	79,000	50%	461,000	11
1985	40,000	80,000	50%	462,000	12
1990	40,000	83,000	48%	488,000	12

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer in harvest

<sup>3</sup>Total deer licenses afield x percent white-tailed deer in total harvest

STRATEGIES

Identify whitetail habitat areas and strive to protect them against overgrazing, cover removal, subdivision development, unwise timber management practices, highway construction, energy and mining developments, dam building and other man-caused activities that destroy or deteriorate white-tailed deer habitat. Provide assistance in planning, timber management, road construction, agriculture, and county and city development. Seek means to improve whitetail habitat. Support legislation that protects wildlife habitat.

(continued)

PROBLEMS

Landowner tolerance to public hunting is a key factor in maintaining or increasing whitetail harvests.

Improved knowledge about white-tailed deer ecology, population dynamics, distribution, and factors influencing reproduction, survival and mortality rates is needed to provide the intensive management necessary to adequately protect and properly utilize this species in the future.

STRATEGIES

Implement an extensive effort of contact with pertinent landowners to identify the basic reasons for closure and ascertain the conditions necessary to maintain or restore a reasonable degree of public access for hunting. Implement means to control the number and distribution of deer hunters in time and space. Continue to emphasize the importance of good hunting ethics and respect for private property. Improve access to public lands by (a) purchasing and/or leasing easements through private lands, and (b) seeking the cooperation of public and private land managers to improve signing and provision of maps designating public roads and public-private land ownership. Provide and implement specific area plans for managing and supervising deer hunting on private lands. Explore methods to provide improved economic inducement for private lands to accommodate public hunting. Where private land predominates, implement harvest objectives and seasons that aim toward a relatively high hunter success and low effort (days afield per deer harvested) and stress controlled participation and distribution of hunters. Support legislation to improve control of distribution of non-resident deer hunters.

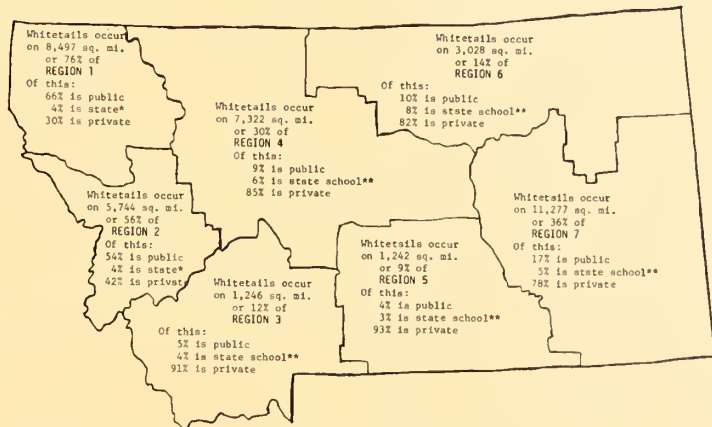
Increase field efforts to ascertain whitetail populations and trends over extensive areas and various habitat types. Continue research on population dynamics, habitat requirements, and impacts of land use, hunting and predation. Continue cooperative efforts with state veterinarians and livestock interests to determine causative factors and significance of local whitetail die-offs. Modify hunter questionnaire to provide specific information on hunter success and effort for white-tailed deer.

(More specific problems and strategies in Regions follow.)

Fig. 2

WHITE-TAILED DEER<sup>1</sup> DISTRIBUTION AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)

25



<sup>1</sup>Distribution includes all area where species is present at some time of the year; thus it tends to be a maximum inclusion of area the species inhabits, including marginal habitat with low population densities of the species.

\*Includes state forestry land open to public.

\*\*State school land -- access dependent on private leasee.

## WHITE-TAILED DEER STRATEGIC PLAN - REGION 1

SUPPLY AND DEMAND

Whitetails occur on 8,497 sq. miles, or 76 percent of Region 1's land area<sup>1</sup>, which is 22 percent of this species' statewide distribution area. In this region, 70 percent of the whitetail-inhabited area is in public ownership (primarily U.S.F.S.); 30 percent is privately owned. Only about 5 percent of private land with whitetails is estimated to be closed or severely restricted to hunting. About 55 percent of the whitetail harvest comes from private land.

Whitetail populations are reported as stable throughout Region 1's hunting districts. Productivity rates are fair to poor.

Region 1 has 12.3 percent of the state's human population and had 9 percent of the total deer licenses reported afield statewide during 1971-74. The number of deer licenses afield in Region 1 ranged from 17,325 in 1971 to 22,566 in 1973 with an average of nearly 20,000 deer licenses afield annually during 1971-74 and 1975. An average of 6,600 whitetails were harvested annually during the 1971-74 management period and comprised 79 percent of the region's total deer harvest and 21 percent of the statewide whitetail harvest. Recent harvests ranged from 8,400 in 1973 to 3,300 in 1976.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82): To provide 156,000 days of white-tailed deer hunting annually at a hunting success rate of 33 percent and an average hunting effort of 26 days/white-tailed deer harvested by 1980.

PROBLEMS

White-tailed deer habitat is influenced both by a closing forest canopy and by timber management practices.

Subdivision development is eliminating essential whitetail winter range in many areas.

Elk management emphasis may be detrimental to whitetails in some areas. Whitetails cannot compete with elk on most winter ranges.

Deer-car collisions are increasing in certain localities.

White-tailed deer fawn survival is chronically low.

<sup>1</sup>Not including Indian Reservations and National Parks.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	6,600	15,700	42%	124,500	19
1975	4,000	14,400	28%	110,400	27
1976	3,300	12,700	26%	108,000	32
1980	6,000	18,000	32%	186,000	26
1985	6,000	21,000	30%	188,000	28
1990	6,000	22,000	27%	192,000	32

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licenses afield x percent white-tailed deer in harvest

STRATEGIES

Provide assistance in timber management planning, evaluate and propose alternative practices, closely monitor all logging activities. Seek cooperation from land management agencies and private companies to promote desirable whitetail habitat.

Provide necessary input to local land use planning groups and encourage strict subdivision laws that protect deer habitat.

Determine land capability for whitetails and other big game, establish management priorities based on species needs and consideration for public demand. A higher harvest of elk may be necessary in some areas to benefit white-tailed deer.

Seek improvements in roadside vegetation management that will minimize frequency of deer collisions.

Continue field research to determine the causative factors.

(continued)



PROBLEMS

Oil, gas and mineral exploration and associated road-building and increased human activity will deteriorate white-tailed deer habitat.

Free ranging dogs harass and kill deer.

STRATEGIES

Identify important whitetail habitat and conflict areas and seek cooperation to protect deer habitat and minimize degradation. Eliminate or curtail use of expanded road systems that do develop.

Institute regulations making free ranging dogs a nuisance and permit disposal of game-harassing dogs by enforcement personnel.

## WHITE-TAILED DEER STRATEGIC PLAN - REGION 2

SUPPLY AND DEMAND

Whitetails occur on 5,744 sq. miles or 56 percent of Region 2's land area<sup>1</sup>, which is 15 percent of this species' statewide distribution area. In this region, 58 percent of the whitetail-inhabited area is in public ownership (primarily U.S.F.S.); 42 percent is privately owned. Most (85%) of private land with whitetails is open to hunting. About 60 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be declining in about 60 percent of the region's hunting districts, stable in 15 percent and undetermined in the remainder. Productivity is poor in many areas.

Region 2 has 15.3 percent of the state's human population and had 11 percent of the total deer hunters reported afield statewide during 1971-74. The number of deer licenses afield in Region 2 ranged from 20,200 in 1971 to 27,200 in 1973 with an average of 23,400 deer licenses afield annually during 1971-74. An average of 3,000 whitetails were harvested annually during the 1971-74 management period. This comprised 35 percent of the region's deer harvest and 9 percent of the statewide whitetail harvest. Annual harvests ranged from 4,500 in 1973 to 1,200 in 1976.

Attainment of future objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvest <sup>2</sup>	Licenses Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	2,800	8,300	35%	58,100	20
1975	2,060	9,000	23%	59,700	29
1976	1,200	7,000	18%	51,800	42
1980	2,800	10,400	25%	73,000	28
1985	2,800	11,400	23%	78,000	30
1990	2,800	12,200	21%	86,000	34

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licenses afield x percent white-tailed deer in harvest

6-YEAR OBJECTIVE (1977-82):	To provide 73,000 days of white-tailed deer hunting annually at a hunting success rate of 25 percent and an average hunting effort of 38 days/white-tailed deer harvested by 1980.
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PROBLEMS

Land development and use practices are reducing the amount and quality of deer ranges and competing with deer use.

White-tailed deer net production is generally low over much of the region.

Whitetail population information is lacking in some hunting districts.

<sup>1</sup>Not including Indian Reservations and National Parks.

STRATEGIES

Promote land use planning, zoning and legislation which would protect important deer ranges from subdivision, mining, excessive grazing, poorly planned timber harvest, dams, or other developments. Oppose range management emphasis on public land that benefits livestock at the expense of deer. Discourage brush removal projects and heavy cattle grazing in river bottom areas that are whitetail range. Discourage silvicultural practices that reduce or degrade whitetail winter range, such as large clearcuts that remove excessive amounts of conifer canopy and remove brush to stimulate tree growth.

Continue field research to determine causative factors for low productivity and fawn survival and take appropriate action recommended from research results. Whitetail habitat can be improved by periodically logging small portions of their winter range in a manner to maintain early successional stages of vegetation essential as winter food supply. Coyote control may be necessary if their predation is shown to have a significant effect on whitetail populations.

Change current work priorities, develop more efficient means of obtaining deer population data and/or assign additional personnel to obtain deer population information in specific hunting districts.

# WHITE-TAILED DEER STRATEGIC PLAN - REGION 3

29

## SUPPLY AND DEMAND

Whitetails occur on 1,246 sq. miles, or 12 percent of Region 3's land area<sup>1</sup>, which is 3 percent of this species' statewide distribution area. Only 5 percent of the whitetail-inhabited area is in public ownership, 4 percent is on state school lands and 91 percent is privately owned. An estimated 50 percent of private land with whitetails is closed or severely restricted to hunting. About 80 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be increasing on 25 percent of Region 3's hunting districts, stable on 33 percent and undetermined on the remainder. Productivity is known to be good in a few areas and is undetermined in most hunting districts.

Region 3 has 15.2 percent of the state's human population and had 17 percent of the total deer hunters reported afield statewide during 1971-74. The number of deer licensees afield in Region 3 ranged from 30,780 in 1971 to 39,630 in 1973 with an average of 35,800 deer licensees afield annually during 1971-74. An average of 1,000 whitetails were harvested annually during the 1971-74 management period and comprised 6 percent of Region 3's deer harvest and 3 percent of the statewide whitetail harvest.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE(1977-82): To provide 23,000 days of white-tailed deer hunting annually at a hunting success rate of 30 percent and an average hunting effort of 21 days/white-tailed deer harvested by 1980.

## PROBLEMS

Subdivisions and other land use developments are encroaching upon whitetail winter habitat.

Whitetail population and distribution information is lacking in some areas due to pressing workloads from other big game species.

Whitetail distribution area is small and hunting is limited mainly to private land.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	1,000	2,100	46%	12,000	13
1975	600	2,400	27%	16,000	24
1976	500	2,300	21%	17,200	36
1980	1,100	3,700	30%	23,000	21
1985	1,100	3,800	28%	25,300	23
1990	1,100	4,200	26%	28,600	26

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent white-tailed deer in harvest

## STRATEGIES

Identify important whitetail habitats and promote land use planning, flood plain zoning, and legislation which would protect whitetail range from subdivisions and other land use developments. Discourage land uses that destroy or degrade whitetail habitat.

Reassign field work activities, where feasible, to improve basic information on whitetails.

Control the number of hunters participating and encourage good hunting ethics and consideration for private landowners.

<sup>1</sup>Not including Indian Reservations and National Parks.

## WHITE-TAILED DEER STRATEGIC PLAN - REGION 4

SUPPLY AND DEMAND

Whitetails occur on 7,322 sq. miles, or 30 percent of Region 4's land area<sup>1</sup>, which is 19 percent of this species' statewide distribution area. Only 9 percent of the whitetail distribution area is in public ownership, 85 percent is privately owned and 6 percent is on State school land. About 70 percent of private and state land with whitetails is closed or severely restricted to hunting. Over 80 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be stable on 75 percent of the region's hunting districts, declining on 12 percent, increasing on 6 percent and undetermined on 6 percent. Productivity is good in most of the region's hunting districts.

Region 4 has 24.7 percent of the state's human population and had 20 percent of the total deer hunters reported afield statewide during 1971-74. The number of deer licensees afield in Region 4 increased from 40,756 in 1971 to 47,008 in 1973 with an average of nearly 42,300 deer licensees afield annually during 1971-74. An average of 6,100 whitetails were harvested annually during the 1971-74 management period and comprised 28 percent of the region's deer harvest and 19 percent of the statewide whitetail harvest. Annual harvests have ranged from 7,100 in 1973 to 4,100 in 1974 and 1975. Due primarily to lower mule deer harvests, the percent whitetail in Region 4 deer harvest has increased from 24 percent in 1971 to 43 percent in 1975.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82):	To provide 44,000 days of white-tailed deer hunting annually at a hunting success rate of 50 percent and an average hunting effort of 9 days/white-tailed deer harvested by 1980.
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PROBLEMS

Increasing closures and restrictions to access for hunting whitetails on private land.

Subdivisions, intensifying agriculture, and other land developments are deteriorating whitetail habitat.

Coyote predation on white-tailed deer.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvest <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success <sup>3</sup>	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	6,100	11,800	51%	54,000	9
1975	5,300	16,100	33%	81,000	15
1976	3,327	8,116	39%	43,000	13
1980	4,900	9,800	50%	49,000	9
1985	4,900	10,800	47%	49,000	10
1990	4,900	11,100	45%	54,000	11

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent white-tailed deer in harvest

STRATEGIES

With methods described in R-4 mule deer segment, maintain and/or re-open private land to hunting through working with landowners. Acquire deer habitat and/or access through purchase or lease.

Provide whitetail habitat information to local planning groups and inform public land managers and private landowners of the harmful effects of activities such as brush removal and heavy grazing in whitetail habitat and encourage consideration for the deer.

Where it is established that coyotes are significantly reducing deer populations, instigate control techniques, including legalizing poisons for use under strict controls.

<sup>1</sup>Not including Indian Reservations and National Parks.

# WHITE-TAILED DEER STRATEGIC PLAN - REGION 5

31

## SUPPLY AND DEMAND

Whitetails occur on 1,242 sq. miles, or 9 percent of Region 5's land area<sup>1</sup>, which is 3 percent of this species' statewide distribution area. Only 4 percent of the whitetail-inhabited area is in public ownership, 93 percent is privately owned and 3 percent is on state school land. Over 60 percent of private and state land is closed to whitetail hunting. About 97 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be increasing on 50 percent of the region's hunting districts, stable on 25 percent and undetermined on 25 percent. Productivity is reported good on about 50 percent of the hunting districts and is undetermined in the remainder.

Region 5 has 17.2 percent of the state's human population and had 13 percent of the total deer hunters reported afield statewide during 1971-74. The number of deer licensees afield in Region 5 increased from 24,218 in 1971 to 32,044 in 1973 with an average of nearly 28,200 deer licensees afield annually during 1971-74. An average of 1,700 whitetails were harvested annually during the 1971-74 management period and comprised 10 percent of Region 5's deer harvest and 5 percent of the statewide whitetail harvest.

Attainment of future objectives will depend upon success in solving problems listed below.

## PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvested <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	1,700	2,800	60%	11,000	7
1975	1,765	4,800	37%	19,500	11
1976	960	2,600	37%	12,700	13
1980	2,500	5,100	50%	20,000	8
1985	2,500	5,700	44%	22,500	9
1990	2,500	6,400	40%	25,000	10

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent white-tailed deer in harvest

6-YEAR OBJECTIVE (1977-82):	To provide 20,000 days of white-tailed deer hunting annually at a hunting success rate of 50 percent and an average hunting effort of 8 days/white-tailed deer harvested by 1980.
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## PROBLEMS

Whitetail hunting is dependent upon access to private land; much of which is being closed or restricted to hunting.

Whitetails biologically could sustain higher harvest rates in many areas but many hunters have a low interest or lack knowledge on how to successfully hunt them.

Biological information is difficult to obtain in some units; improved information might allow better utilization of whitetail populations and prevent chronic agricultural damage in winter.

Subdivisions, intensifying agriculture and other land use developments are deteriorating whitetail habitat.

## STRATEGIES

Assign additional personnel and/or change work priorities to make personal contacts with landowners and seek agreements for managing deer hunters using private land.

Promote interest through information programs and specific hunting seasons that increase opportunity to hunt whitetails.

Assign additional personnel and/or change work priorities to obtain additional field information on whitetail population status, distribution, and sustained harvest potential in specific areas.

Provide whitetail habitat information to local planning groups and inform public and private land managers of the harmful effects of activities such as brush removal and heavy grazing to whitetail habitat.

<sup>1</sup>Not including Indian Reservations and National Parks.

## WHITE-TAILED DEER STRATEGIC PLAN - REGION 6

SUPPLY AND DEMAND

Whitetails occur on 3,028 sq. miles, or 14 percent of Region 6's land area<sup>1</sup>, which is 8 percent of this species' statewide distribution area. Only 10 percent of the whitetail distribution area is in public ownership (B.L.M.), 82 percent is privately owned and 8 percent is on state school land. Over 85 percent of private and state land is open to whitetail hunting. About 88 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be stable on 70 percent of Region 6's hunting districts, decreasing on 15 percent and increasing on the remaining 15 percent. Productivity is known to be good on a few hunting districts, is poor on one and undetermined in many.

Region 6 has 9.5 percent of the state's human population and had 9 percent of the total deer hunters reported afield statewide during 1971-74. The number of deer licensees afield in Region 6 increased from 17,958 in 1971 to 23,208 in 1973 with an average of 20,250 deer licensees afield annually during 1971-74. An average of 6,400 whitetails were harvested annually during the 1971-74 management period comprising 55 percent of Region 6's deer harvest and 20 percent of the statewide whitetail harvest. Annual harvests have varied from 8,100 in 1973 to 2,190 in 1976.

Attainment of future objectives will depend upon success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82): To provide 60,000 days of white-tailed deer hunting annually at a hunting success rate of 45 percent and an average hunting effort of 10 days/white-tailed deer harvested by 1980.

PROBLEMS

Future harvests depend upon maintaining access to private and public land. Inconsiderate behavior by a few hunters aggravates the access problem.

Intensifying agriculture and energy developments are or will deteriorate deer habitat in some areas.

Hunters prefer mule deer in some areas and have a lower interest in hunting whitetails.

Biological information is not easily obtained on whitetails and lack of information limits higher utilization rates.

<sup>1</sup>Not including Indian Reservations and National Parks.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

	White-tailed Deer Harvested <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
Aver.					
1971-74	6,400	11,000	58%	44,500	7
1975	3,200	6,300	47%	30,000	9
1976	2,190	4,250	51%	18,064	8
1980	6,000	13,200	45%	60,000	10
1985	6,000	14,200	43%	60,000	10
1990	6,000	15,000	39%	66,000	11

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent white-tailed deer in harvest

STRATEGIES

Implement steps to cause improved distribution of hunters, including agreements with private landowners to control and monitor hunting pressure and improved signing and mapping of access to public lands. We suggest compulsory adult hunter education to improve hunter ethics. Seek means to provide incentive to landowners to maintain land open to public hunting.

Identify key whitetail habitat areas and encourage public agencies and private landowners to protect them from degradation.

Provide incentive for hunting whitetails.

Assign personnel to work specifically on obtaining white-tailed deer information and to contact private landowners to seek means to keep land open to hunting. Modify hunter questionnaires to obtain specific information on whitetail hunting success and effort.

# WHITE-TAILED DEER STRATEGIC PLAN - REGION 7

33

## SUPPLY AND DEMAND

Whitetails occur on 11,277 sq. miles, or 36 percent of Region 7's land area<sup>1</sup>, which is 29 percent of this species' statewide distribution area. Only 17 percent of the whitetail distribution area is in public ownership (primarily B.L.M. and U.S.F.S.), 78 percent is privately owned and 5 percent is on state school land. Estimates are that 33 percent of private and state land is closed or severely restricted to whitetail hunting. About 85 percent of the whitetail harvest comes from private land.

Whitetail populations are reported to be increasing in 40 percent of the region's hunting districts and stable in most of the others.

Region 7 has 5.8 percent of the state's human population and had 21 percent of the total deer hunters reported statewide during 1971-74. The number of deer licensees afield in Region 7 increased from 33,755 in 1971 to 51,239 in 1974 with an average of 44,250 deer licensees afield annually during 1971-74. An average of 7,200 whitetails were harvested annually during the 1971-74 management period comprising 21 percent of Region 7's deer harvest and 23 percent of the statewide whitetail harvest. Whitetail harvests have increased from 4,800 in 1971 to 11,300 in 1975; the percentage of whitetails in deer harvests changed from 17 percent to 37 percent in the same period. Whitetail harvests dropped sharply in 1976 when regulations resulted in a sharp reduction of resident and nonresident hunters traveling to southeast Montana.

Attainment of future objectives will depend upon success in solving problems listed below.

## 6-YEAR OBJECTIVE (1977-82)

To provide 85,000 days of white-tailed deer hunting annually at a hunting success rate of 80 percent and an average hunting effort of 5 days/white-tailed deer harvested by 1980.

## PROBLEMS

Intensified agriculture and energy developments are deteriorating whitetail habitat.

The existing nonresident license structure precludes desired hunter number control by specific hunting districts.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WHITE-TAILED DEER<sup>1</sup>

Aver.	White-tailed Deer Harvested <sup>2</sup>	Licensees Afield <sup>3</sup>	Hunting Success	White-tailed Deer Hunting Recreation Days	Effort (Days Hunted Per White-tailed Deer Harvested)
1971-74	7,200	9,200	78%	35,000	5
1975	11,300	18,100	62%	72,000	6
1976	4,755	8,366	51%	36,837	8
1980	17,000	21,200	80%	85,000	5
1986	17,000	22,800	75%	86,000	5
1990	17,000	24,000	71%	102,000	6

<sup>1</sup>Deer questionnaire information split on basis of percent of species in harvest

<sup>2</sup>Includes prorated number of "unidentified" deer reported in harvest

<sup>3</sup>Total deer licensees afield x percent white-tailed deer in harvest

## STRATEGIES

Identify key whitetail habitat areas and encourage public agencies and private landowners to protect them from degradation. Promote land-use planning and management which would protect whitetail habitat from activities such as coal stripping, heavy grazing, and brush and riparian vegetation removal.

Support legislation to pattern the nonresident license structure after the resident and enable control of hunting pressure by specific hunting districts.

<sup>1</sup>Not including Indian Reservations and National Parks.

(continued)

PROBLEMS

Intensified demand for a species located primarily on privately controlled land will require intensive, refined management by both habitat types and landownership considerations to achieve and sustain desired supplies of harvestable deer available for public hunting.

STRATEGIES

Determine, by hunting district, the amount and location of lands open, closed and restricted to white-tailed deer hunting and why.

Control the number and distribution of white-tailed deer hunters by: (1) habitat type based on vegetation, topography, and whitetail biology; (2) permits similar to antelope; and (3) establishing and implementing management plans for private lands to accommodate hunting (example: currently a 420+ section single land holding in Region 7 has a prescribed management plan for antelope where the department agrees to: (1) determine the number and distribution of antelope; (2) recommend the number and distribution of hunters to accomplish the desired harvest; and (3) provide supervisory assistance during the hunting session).

Gain access to sizable public land holdings by purchasing and/or leasing easements through private lands and implementing existing plans, i.e. the S-60 program, with state and Federal land managers.

Provide financial inducement on an area basis (i.e. counties) from sportsmen via a "county damage stamp" which: (1) yields an economic gain to the area; (2) insures re-imburement of property loss to individual landowners resulting from hunting; (3) represents a positive acceptable action from sportsmen; and (4) obligates the state to initiate and regulate the means of opening private land to hunting.

Determine, by topographic and vegetation similarities, habitat types from ERTS and infrared photos and geological survey maps.

Determine the biological supply of white-tailed deer by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys, population modeling, thermo infrared censusing and specific research will be employed. Modify hunter questionnaire to obtain specific information on hunter success and effort for whitesails.

Establish hunting district boundaries and seasons based on vegetation, topography, white-tailed deer biology and land ownership considerations.



SUPPLY AND DEMAND

The elk is a highly prized big game animal from the standpoint of its size, palatable meat, trophy value and sporting qualities. Elk occur on 36,370 sq. miles, or 28 percent of the state (excluding National Parks and Indian reservations). They are distributed primarily in the forested areas of western and central Montana, but also occur in the rough terrain of the Missouri Breaks in north-eastern Montana (Fig. 3). Landownership status where elk occur is 73 percent public, 2 percent state school land and 25 percent private. Slightly over 80 percent of the elk harvest is estimated to come from public land.

Since 1950, estimated annual elk harvests have usually been sustained between 10,000 and 16,000. Elk management, including acquisition of important winter ranges, has received a high degree of Department emphasis and has been relatively successful. Most of the state's elk herds have stable or increasing populations; a gradual increase in the annual, harvestable supply is anticipated by 1980.

Future supplies of elk for harvest and/or viewing will depend greatly upon land-use policies on public forests and adjacent lands vital for winter range. Elk management policies and the types and variety of hunting opportunities available will also be dependent on land uses (degree of roads, timber harvest, access, etc.).

Hunting demand for elk is continually increasing; the number of elk hunters reported afield statewide increased from 70,300 in 1971 to 90,700 in 1975. Nonresident elk hunters reported afield increased from 9,750 in 1971 to 18,000 in 1975 (20% of total elk hunters).

In 1976 a 17,000 limit (and increased fees) was placed on non-resident elk licenses by the Legislature. Only 11,500 nonresident elk hunters were reported afield in 1976. Extremely mild weather in fall of 1976 also contributed to the reduced number of hunters and low harvest. Combined resident and limited nonresident demand for harvestable elk is expected to exceed the available supply prior to 1985.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ELK

	Elk Harvest	Licenses Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
1971	11,500	70,300	16%	514,800	45
1972	10,400	74,500	14%	552,700	53
1973	16,900	87,700	19%	641,700	38
1974	10,600	88,200	12%	719,000	68
1975	14,600	90,700	16%	650,000	44
1976	7,860	74,190	11%	601,064	76
1980	14,800*	93,000**	16%	700,000	48
1985	14,800*	98,000**	15%	783,000	53
1990	14,800*	106,500**	14%	851,000	57

## STATEWIDE GOAL:

To protect and perpetuate elk and their habitat and to increase the supply of available, harvestable elk to meet demands for hunting and non-hunting recreation.

## 6-YEAR OBJECTIVE (1977-82):

To provide 700,000 days of elk hunting annually at a hunting success rate of 16 percent and an average hunting effort of 48 days/elk harvested by 1980.

\*not including Yellowstone National Park migratory elk harvestable in late season hunt

\*\*based on Montana Department of Community Affairs human population projections (mid-range) and 16,000 nonresidents afield statewide.

(continued)

PROBLEMS

Land uses are increasing that reduce or destroy the carrying capacity for elk. Included are timber management, livestock grazing, subdivision and recreation resort expansion, mining and oil and gas exploration.

Increasing hunting demand is resulting in concentrations of hunters which in some cases is lowering the quality of the hunting experience and/or causing negative effects to welfare of specific herds.

Access to public land with elk is blocked by closed private land.

Some elk herds cause periodic damage to private property.

Some habitats may not support current, or increased, numbers of elk without significant replacement of other big game species.

STRATEGIES

Urge public and private forest managers to apply the recommendations of the cooperative elk-logging study. Seek cooperation to keep the number and mileage of new forest roads to a minimum and to close roads when primary need for them is over. Identify important elk habitat and provide assistance to timber managers to promote consideration for elk habitat needs. Closely monitor all logging practices and present alternatives where necessary. Seek means to improve elk habitat. Encourage "let burn" policies in wilderness areas that would benefit elk. Seek cooperation of public land managers to improve allocation of forage for elk. Acquire key elk winter ranges on private land where feasible by purchase, lease or agreement. Promote land-use planning and legislation which would protect elk habitat. Continue intensive research to determine elk requirements and relationships of land use.

Reduce hunter concentrations in time and space by manipulating hunting seasons, restricting either-sex hunts to limited permits, and assigning hunting periods and quotas to specific areas to disperse hunters. Evaluate current hunter use of Department elk ranges and take necessary steps to prevent excessive concentrations of hunters.

Work intensively with private landowners to seek conditions under which they would increase public access. Cooperate with the U.S. Forest Service and Bureau of Land Management to expand their public access programs. Assist applicants in maintaining legal access where it is threatened. Acquire access routes by purchase, lease or agreement.

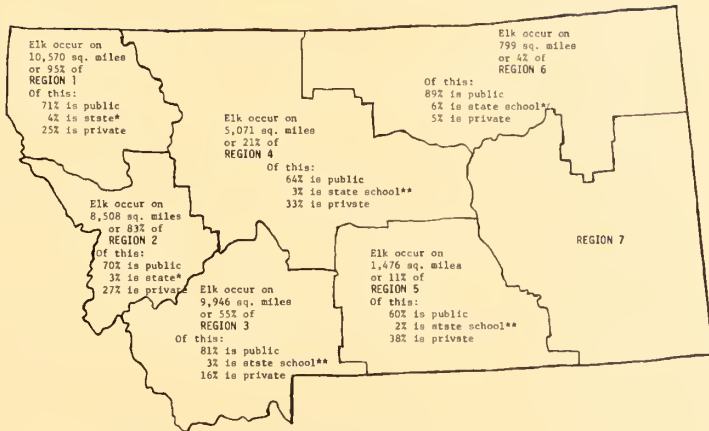
Maintain sustained harvests by adequate hunting seasons to maintain elk herds within range carrying capacity. Implement special hunting seasons in local areas of reported damage and provide other necessary assistance to landowners. Acquire or seek trades of private land that have chronic elk damage complaints.

Evaluate specific areas of inter-specific competition, determine what alternative management directions are possible and inform the public of the various consequences and/or trade offs. Revise management objectives, if necessary, in accordance with the capability of the land, species needs, and consideration for public demand.

Fig. 3

ELK DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)

37



<sup>1</sup>Distribution includes all area where species is present at some time of the year; thus it tends to be a maximum inclusion of area the species inhabits, including marginal habitat with low population densities of the species.

\*Includes state forestry land open to public.

\*\*State school land -- access dependent on private lessee.

(Public area somewhat inflated due to private land within forest boundaries.)

SUPPLY AND DEMAND

Elk occur on 10,570 sq. miles, or 95 percent of the land area in Region 1; this is 29 percent of the statewide elk distribution area. The elk-inhabited land in Region 1 is 75 percent public (mainly U.S.F.S.) and 25 percent private. Nearly 90 percent of the elk harvest comes from public land.

Elk populations are reported as stable in 4 of 5 hunting districts and increasing in 1. Productivity is good in 4 districts and fair in 1.

The number of elk hunters (licensees afield) ranged from 14,950 in 1971 to 18,250 in 1973 with a 5-year average of 16,750, representing 20 percent of the total elk hunters afield statewide. An average of 2,250 elk were harvested annually from 1971 to 1975, comprising 17 percent of the statewide elk harvest. Annual harvests ranged from 1,583 in 1976 to 2,750 in 1973.

Future objectives are aimed to maintain elk harvest and recreation opportunities similar to those of 1975. Increasing numbers of hunters afield will tend to gradually lower hunting success and increase days of hunting effort per elk harvested. Attainment of future objectives will be dependent upon the degree of success in solving problems listed below.

6-YEAR OBJECTIVE (1977-82):	To provide 140,000 days of elk hunting annually at a hunting success rate of 13 percent and an average hunting effort of 56 days/elk harvested by 1980.
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PROBLEMS

Timber cutting and associated road building are accelerating at a rate that precludes proper consideration for elk habitat values in public forest land management.

Forest succession and fire suppression policies are causing elk habitat deterioration.

Hunting pressure is increasing to undesirable levels, particularly during shorter either-sex seasons.

Short either-sex seasons do not harvest migratory elk in South Fork in all years.

Subdivisions, mining, and oil and gas exploration threaten the welfare of elk.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 1

	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
Aver.					
1971-74	2,200	16,650	13%	129,000	59
1975	2,476	17,133	14%	128,800	52
1976	1,583	14,533	11%	121,900	77
1980	2,500	18,200	13%	140,000	56
1985	2,500	19,900	12%	155,000	62
1990	2,500	21,600	11%	175,000	70

STRATEGIES

Request forest managers to give full consideration to recommendations of Interagency Cooperative Elk Logging Study. Provide assistance to public and private timber managers to promote consideration for elk habitat requirements. Closely monitor all logging practices and prepare alternatives where necessary. Close logging roads that hinder elk herds and migration.

Promote the recognition of the importance of aerial vegetation studies for optimum elk winter range and pursue possibilities of improving elk winter ranges through burning (both controlled and wildfire) and/or carefully conceived and executed timber management practices.

Implement hunting seasons with limits on hunter participation per time period.

Implement late either-sex permit hunts aimed to obtain proper harvest of migratory herds.

Identify all important elk habitat and oppose activities that are detrimental to elk.

## ELK STRATEGIC PLAN - REGION 2

SUPPLY AND DEMAND

Elk occur on 8,508 sq. miles, or 83 percent of the land area in Region 2; this is 23 percent of the statewide elk distribution area. The elk-inhabited land in Region 2 is 73 percent public (mainly U.S.F.S.) and 27 percent private. Over 20 percent of the private land is closed or severely restricted. About 78 percent of the elk harvest comes from public land.

Elk populations are reported as stable in 14 of 21 hunting districts, increasing in 3 and undetermined in 4. Productivity is good in 11 districts, fair in 3 and undetermined in 7.

The number of elk hunters (licensees afield) increased from 22,000 in 1971 to 26,950 in 1975 with a 5-year average of 24,600, representing 30 percent of the total elk hunters afield statewide. An average of 3,900 elk were harvested annually from 1971 to 1975, comprising 30 percent of the statewide elk harvest. Annual harvests ranged from 1,936 in 1976 to 5,285 in 1973.

Future objectives are aimed to increase elk harvest and recreation opportunities somewhat over the 1971-75 period. Increasing numbers of elk hunters afield are expected to gradually lower hunting success and increase days of effort per elk harvested. Attainment of future objectives will be dependent upon the degree of success in solving problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 2

Aver.	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
1971-74	3,670	24,000	15%	171,400	48
1975	4,714	26,949	17%	175,500	37
1976	1,936	21,954	9%	166,000	85
1980	4,200	28,800	14%	210,000	50
1985	4,200	31,100	13%	231,000	56
1990	4,200	33,100	12%	252,000	60

6-YEAR OBJECTIVE (1977-82): To provide 210,000 days of elk hunting annually at a hunting success rate of 14 percent and an average hunting effort of 50 days/elk harvested by 1980.

PROBLEMS

Timber cutting and associated road building has accelerated at a rate that precludes proper consideration for elk habitat values.

STRATEGIES

Insist that public land managers apply the recommendation of the cooperative elk-logging study when planning timber sales. Insist that land managers keep the number and mileage of new roads to a minimum, to build them only to minimum standards and to close roads when the primary need for them is over. Encourage road closures that would result in sizeable portions of drainages, or small drainages in their entirety, to serve as elk retreats on both summer and winter ranges. Establish walk-in hunting areas where no vehicle traffic is allowed during the hunting season.

(continued)

PROBLEMS

Subdivision developments, overgrazing, mining, and proposed dams are destroying or threatening elk winter range.

Elk herds often cause damage to private property.

Increasing hunting demand is resulting in concentrations of hunters and lowering the quality of the hunting experience.

Land acquisition and other management aspects are becoming more expensive.

Much actual or potential elk range is now being fully utilized by livestock.

Elk productivity is below its potential in much of Region 2.

Habitat may not support increases in elk without displacement of other species, particularly mule deer, whitetails, bighorn sheep and possibly moose.

STRATEGIES

Subdivisions on actual or potential winter elk range should be discouraged. Promote land-use planning, zoning and legislation which would protect elk habitat. Acquire control by purchase, lease or agreement, of important elk ranges. Participate in land-use planning by other agencies and organizations. Seek more consideration for elk requirements on public range lands.

Implement special hunting seasons in the area of the reported damage. Maintain sustained harvests by adequate hunting seasons to keep elk herds within range carrying capacity. Trap and transplant if feasible. Provide protection to private property by fencing, herding, scare devices, or other means necessary to decrease damage.

Reduce hunter concentrations by manipulating hunting seasons, such as having similar seasons over large areas, restricting either-sex hunting to limited special permits and assigning hunting periods and quotas.

Seek new sources of funding. Take action to terminate in-lieu of tax payments. Reduce game range headquarters installations to the bare minimum necessary for maintenance work. Eliminate some headquarters and concentrate headquarters facilities in central locations.

Urge public land managers to allocate more forage for elk. Acquire important elk winter range on private land when possible.

Maintain forage on native ranges in good condition. Reseed unproductive portions of department-owned ranges with palatable forage species. Acquire small "stump-ranches" and manage them for elk. This would also reduce damage complaints. Investigate predation on elk calves and initiate local control measures if justified.

Evaluate the anticipated effects of elk population increases. Inform the public of the problem and consequences of various alternatives and evaluate their responses. If detrimental aspects outweigh benefits, control elk population with adequate elk harvests.

SUPPLY AND DEMAND

Elk occur on 9,946 sq. miles, or 55 percent of the land area in Region 3; this is 27 percent of the statewide elk distribution area. The elk-inhabited land in Region 3 is 81 percent public (mainly U.S.F.S.), 16 percent private and 3 percent state school land. Over 40 percent of the private land with elk is closed or severely restricted to hunting. About 85 percent of the elk harvest comes from public land.

Elk populations are increasing on about half of the region's hunting districts and stable in the remainder.

The number of elk hunters (licensees afield) increased from 23,800 in 1971 to 32,500 in 1975 with a 5-year average of 28,800, representing 35 percent of the total elk hunters afield statewide. An average of 4,300 elk were harvested annually from 1971 to 1975, comprising 33 percent of the statewide elk harvest. Annual kills ranged from 3,495 in 1976 to 5,550 in 1973.

Future objectives intend to provide elk harvest and recreation opportunities similar to 1975. Expected increases in hunters afield will tend to lower hunter success and increase days of effort per elk harvested. Attainment of future objectives will be dependent upon the degree of success in solving problems listed below. More consistent utilization of migratory elk from Yellowstone National Park could add a bonus to elk hunting opportunities in Region 3.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 3

	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
Aver.					
1971-74	4,200	27,900	15%	185,000	44
1975	4,883	32,500	15%	214,750	44
1976	2,495*	25,612	10%	190,493	76
1980	5,000*	32,000	16%	220,000	44
1985	5,000*	33,700	14%	260,000	50
1990	5,000*	36,200	13%	270,000	54

\*not including harvest of migratory Yellowstone National Park elk in post-season hunts

6-YEAR OBJECTIVE (1977-82): To provide 220,000 days of elk hunting annually at a hunting success rate of 15 percent and an average hunting effort of 44 days/elk harvested by 1980.
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PROBLEMS

Hunting pressure and related hunter congestion has reached intolerable levels in some situations, both from the standpoint of the hunters and the landowners.

Access to public land with elk is blocked by closed private land in some areas.

Significant portions of Region 3's elk populations winter on private land where their welfare is dependent on the landowner's economic status and tolerance to elk.

Two major elk herds in Region 3 winter in Montana and summer in Yellowstone National Park. This complicates management in that animals are not available to hunters until snow stimulates downward migration which usually occurs much later than the general hunting season.

Other land uses, such as logging, livestock grazing, and recreational resort development are minimizing opportunities to produce elk.

STRATEGIES

Distributing hunters by time periods has worked successfully in several locations. This activity will be expanded in the future.

Encourage USFS and BLM to intensify their access program; exert a stronger effort to assist sportsmen in maintaining existing access when attempts are made to block bona fide public access.

Land acquisition must have higher priority than it has received in order to maintain current elk populations in some localities that have encroaching land-use demands.

Scheduled hunting seasons for a later date have allowed successful management in some years, but minority objections have hampered conducting late seasons and are a chronic source of expenditure of public funds and manpower. Sustained elk management programs can be successful only if there is a consistency of action in the right direction.

Where public lands are involved, more responsible consideration should be given to wildlife needs.

## ELK STRATEGIC PLAN - REGION 4

SUPPLY AND DEMAND

Elk occur on 5,071 sq. miles, or 21 percent of the land area in Region 4; this is 14 percent of the statewide elk distribution areas. The elk-inhabited land in Region 4 is 64 percent public ownership (mainly U.S.F.S.), 33 percent private and 3 percent state school land. About 40 percent of private land with elk is closed or severely restricted to hunting. About 80 percent of the elk harvest comes from public land.

Elk populations are increasing on about half of the region's hunting districts and are stable on the remainder.

The number of elk hunters (licensees afield) increased from 15,300 in 1971 to 19,100 in 1975 with a 5-year average of 17,900; this represented 22 percent of the total elk hunters afield statewide. An average of 2,100 elk were harvested annually from 1971 to 1975, comprising 17 percent of the statewide elk harvest. Annual kills ranged from 1,592 in 1976 to 2,900 in 1973.

Future objectives intend to increase elk harvest and recreation opportunities somewhat over the 1971-75 period. Increasing numbers of elk hunters afield will tend to gradually lower hunter success and increase hunting effort per elk harvested. Attainment of future objectives will require improved success in solving problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 4

	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
Aver.					
1971-74	2,100	17,600	12%	103,000	47
1975	2,124	19,060	11%	106,200	50
1976	1,592	17,161	9%	103,981	65
1980	2,500	19,100	13%	110,000	44
1985	2,500	20,200	12%	118,000	47
1990	2,500	21,200	11%	125,000	50

6-YEAR OBJECTIVE (1977-82):	To provide 110,000 days of elk hunting annually at a hunting success rate of 13 percent and an average hunting effort of 44 days/elk harvested by 1980.
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PROBLEMS

Heavy grazing and intensifying logging practices on public lands reduce the carrying capacity for elk.

Significant portions of public land with elk are blocked off to public access by private land closures.

STRATEGIES

Continue and intensify work with U.S. Forest Service and Bureau of Land Management to implement and use priorities that gives wildlife a fair shake. These priorities include both timber and grazing lands. Make the public aware of detrimental and beneficial effects of land use practices to elk. Urge land managers to apply the recommendations of the Cooperative Elk-Logging Study when planning sales.

Work with private landowners to seek conditions under which they would open lands to the hunter. Acquire more land through purchase or lease. May require purchase only of certain segments of land if landowners are agreeable.

(continued)



PROBLEMS

There is a need to determine inter-specific competition between elk and other big game.

Subdivision developments are encroaching upon important elk winter range in some areas.

Hunter concentrations on department-owned lands.

Low productivity of some department-owned land for raising elk.

Current elk herd levels in some areas are already at or above the landowner's tolerance.

Continuation of Sun River Game Preserve precludes proper management of elk in surrounding areas.

STRATEGIES

Further study the effects of competition between the various big game species and elk and make recommendations for harvests based on these facts. If competition is acute and harmful, set seasons to solve the problems, i.e. reduce the elk herd to increase deer or sheep herd or vice-versa.

Subdivisions on actual or potential winter elk range should be discouraged.

Reductions of the number of hunters present at one time may have to be implemented if elk distribution or production is being adversely affected, or if the quality of the hunting experience is being adversely affected.

Some lands may have to be artificially stimulated to produce more desirable vegetation than is presently available for elk.

Either elk numbers will have to be reduced in these areas or key tracts of land purchased.

Strive to abandon Sun River Game Preserve.

## ELK STRATEGIC PLAN - REGION 5

SUPPLY AND DEMAND

Elk occur on 1,476 sq. miles, or 11 percent of the land area in Region 5; this is 4 percent of the statewide elk distribution area. The elk-inhabited land in Region 5 is 60 percent public ownership (mainly U.S.F.S.), 38 percent private and 2 percent state school land. About 75 percent of the elk harvest comes from public land.

Elk populations are increasing in 6 of 9 hunting districts and are stable in 3.

The number of elk hunters (licensees afield) increased from 3,000 in 1971 to 4,900 in 1975, representing 4 percent of the total elk hunters afield statewide. An average of 300 elk were harvested annually from 1971 to 1975, comprising 2 percent of the statewide elk harvest. Annual kills ranged from 161 in 1972 to 390 in 1975.

Future objectives are aimed to maintain elk harvest and recreation opportunities similar to those experienced in 1975. Attainment of these objectives will require improved success in solving problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 5

	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
Aver.					
1971-74	280	3,700	8%	17,300	62
1975	390	4,930	8%	24,062	62
1976	202	3,393	6%	17,442	86
1980	400	4,600	8%	24,800	62
1985	400	5,200	7%	28,000	70
1990	400	5,700	7%	28,000	70

6-YEAR OBJECTIVE (1977-82):

To provide 25,000 days of elk hunting annually at a hunting success rate of 8 percent and an average hunting effort of 62 days/elk harvested by 1980.

PROBLEMS

Subdivision and recreation developments are reducing elk habitat in some hunting districts.

Livestock/grazing conflicts with elk management on some public lands.

Over-concentrations of hunters in some areas.

Winter range for elk is deteriorating in some areas due to forest succession.

Privately owned elk winter range imposes limitations on proper herd management in some areas.

STRATEGIES

Identify important elk habitat areas and seek consideration for them at all levels of land-use planning and development. Purchase key habitat areas where possible.

Seek cooperative efforts from the USFS and permittees to shorten or change period of livestock use in areas of elk/livestock conflict. Encourage improved range management practices for livestock that disperse livestock grazing pressure away from conflict areas.

Implement seasons that will control the number of hunters present at one time, such as a bull only season and either-sex permits limited to time period and space.

Seek cooperative efforts from USFS to initiate timber cutting and controlled burning to stimulate growth of desirable vegetation for elk winter range.

Seek cooperative efforts from USFS and landowners to obtain easements for hunting access to public and private lands. Purchase key winter areas where possible. Implement post-season hunts where necessary. Consider a limited number of landowner preference permits for hunting elk on private land currently closed to hunting.

SUPPLY AND DEMAND

Elk occur on 799 sq. miles, or 4 percent of the land area in Region 6; this is 2 percent of the statewide elk distribution area. The elk-inhabited land in Region 6 is 89 percent public ownership (BLM), 5 percent private, and 6 percent State school land. About 93 percent of the elk harvest comes from public land.

The elk herds have excellent productivity and the population is increasing which should allow an increased harvestable supply.

The number of elk hunters (licensees afield) ranged from 275 in 1971 to 110 in 1976 with a six-year average of 81; this represented .1 percent of the total elk hunters afield statewide. An average of 75 elk were harvested annually from 1971 to 1975, comprising .6 percent of the statewide elk harvest. Annual kills ranged from 173 in 1971 to 63 in 1974.

Elk hunting is primarily by permits. The number of applications for permits has increased from 3,441 in 1971 to 5,070 in 1975. Some 3,016 archers have harvested about 106 elk from 1970 through 1975.

Future objectives intend to significantly increase public utilization of elk in Region 6. Attainment of objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR ELK IN REGION 6

	Elk Harvest	Licensees Afield	Hunting Success	Elk Hunting Recreation Days	Effort (Days Hunted Per Elk Harvested)
Aver. 1971-74	83*	129	65%	290	3.5
1975	40*	55	72%	160	4.0
1980	200	286	70%	1,200	6.0
1985	200	300	67%	1,200	6.0
1990	200	300	67%	1,200	6.0

\*not including archer harvest, which averaged about 18 per year.

6-YEAR OBJECTIVE (1977-82):	To provide 1,200 days of elk hunting annually at a hunting success rate of 70 percent and an average hunting effort of 6 days/elk harvested by 1980.
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PROBLEMS

Excessive concentrations of hunters and other recreationists has caused undesirable displacement of elk and decreased quality of hunting.

Elk damage to private property including crops, fences and range.

Considerable disagreement as to elk management objectives exists between various agencies, ranchers and sportsmen.

Elk populations may be having adverse effects on mule deer.

Illegal hunting and taking of elk.

STRATEGIES

Hunter (including archers) concentration and distribution will be controlled by time and area adjustments.

A detailed management plan for controlling elk numbers in specific areas is being prepared.

Implement a coordinating committee with representatives from interested groups to resolve differences.

A detailed management plan will identify conflict areas and weight priorities for different portions of the elk range.

Intensify law enforcement and public education and seek improved public cooperation.



SUPPLY AND DEMAND

Antelope occur on 61,189 sq. miles, or 47 percent of the state (excluding National Parks and Indian Reservations). Land ownership status where antelope occur is 75 percent private, 18 percent public, and 7 percent state school lands. Over one-fourth (27%) of privately controlled land with antelope is closed or severely restricted to public hunting; hunters are charged "trespass fees" on an additional 5 percent of private land with antelope. Nearly four-fifths (78%) of the antelope harvest is derived from privately controlled lands.

Many of the state's antelope herds are stable or increasing, but some populations are decreasing due primarily to habitat deterioration.

Antelope harvests have been regulated annually by a permit system since 1943. Peak harvests were reached in 1955 and 1964 when over 26,000 antelope were bagged.

The supply of harvestable antelope can be maintained and increased if hunting access to private lands can be improved.

Demand for antelope hunting has increased since the 1965-69 period when an annual average of 19,800 hunters drawing permits harvested 14,200 antelope annually. From 1971-75 an average of 26,600 hunters (allowed permits) harvested 18,700 antelope annually. Total applications for antelope permits peaked at 46,092 in 1974 and declined 2 percent (45,207 to 44,518) between 1973 and 1975; this was primarily due to a decrease in application for permits in eastern Montana (Regions 6 and 7) and to preference given to unsuccessful applicants from previous years. Applications continued to increase (28%) in the other Regions (3, 4 and 5) between 1973 and 1975. Less permits were issued in 1976 and total applications decreased to 34,523; major decreases occurred in eastern Montana (Regions 5, 6 and 7). The number of applications in Regions 5 and 7 was less than the number of permits available

in 1976. This shift in interest from east to west is probably due to the combination of: decreasing access to hunt antelope in eastern Montana, decreased availability of mule deer, and increased travel and hunting costs.

The statewide hunting demand for antelope is expected to continue to exceed the available supply. Supply will continue to exceed demand in eastern regions unless means to redistribute resident and nonresident hunters are implemented. Attainment of future objectives will depend on success in finding solutions to statewide problems (next page) and regional problems.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE

	Antelope Harvest	Licenses Afield	Hunting Success	Antelope Hunting Recreation Days	Effort (Days Hunted Per Antelope Harvested)
1971	18,400	24,800	74%	64,700	3.5
1972	19,700	27,800	71%	55,500	2.8
1973	19,300	28,100	69%	71,700	3.7
1974	18,800	27,200	69%	81,500	4.3
1975	17,300	25,000	69%	75,000	4.3
1976	16,300	23,300	70%	69,800	4.3
1980	26,500	35,400	72%	96,000	3.6
1985	26,500	35,400	72%	96,000	3.6
1990	26,500	35,400	72%	96,000	3.6

STATEWIDE GOAL: To protect and perpetuate antelope and their habitat and to increase the supply of available, harvestable antelope to meet demands for hunting and nonhunting recreation.

6-YEAR OBJECTIVE (1977-82): To provide 96,000 days of antelope hunting annually at a hunting success rate of 72 percent and an average hunting effort of 4 days per antelope harvested by 1980.

(continued)

PROBLEMS

Accelerated closure of private land is greatly reducing the supply of harvestable antelope available for hunting and is intensifying the concentrations of hunters elsewhere.

Intensifying land-use practices on public and private rangelands including expanding cultivation, heavy livestock grazing, brush control and coal mining activities are destroying or deteriorating habitats important to the welfare of antelope.

Better methods are needed to determine the annual harvestable supply that will be available for public hunting in specific areas.

Landowner complaints of antelope damage to agricultural crops.

Maintaining an equitable system of allocating hunting permits.

STRATEGIES

Implement an extensive effort of contact with pertinent landowners to identify the basic reasons for closure and ascertain the conditions necessary to maintain or restore a reasonable degree of public access for hunting. Implement means to control the number and distribution of antelope hunters in time and space. Continue to emphasize the importance of good hunting ethics and respect for private property. Improve access to public lands by (a) purchasing and/or leasing easements through private lands, and (b) seeking the cooperation of public and private land managers to improve signing and provision of maps designating public roads and public-private land ownership. Provide and implement specific area plans for managing and supervising antelope hunting on private lands. Explore methods to provide improved economic inducement for private lands to accommodate public hunting. Where private land predominates, implement harvest objectives and seasons that aim toward a relatively high hunter success and low effort (days afield per antelope harvested) and stress controlled participation and distribution of hunters. Support legislation to improve control of distribution of nonresident antelope hunters.

Identify important habitat areas and strive for range management practices and policies that provide adequate consideration to the life requirements of antelope. Provide guidelines for protecting and/or enhancing antelope habitat to minimize the detrimental effect of other land uses. Seek improved coordination with public land managers and increase consultations with private landowners.

Determine, by topographic and vegetation similarities, habitat types from ERTS and infrared photos and geological survey maps. Determine the biological supply of antelope by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys, population modeling, thermo infrared censusing and specific research will be employed. Establish hunting district boundaries and seasons based on vegetation, topography, antelope biology and landownership considerations.

Strive to keep private lands open to public hunting and direct hunting pressure to areas where it is desired to alleviate chronic damage reports.

Evaluate current system and seek alternatives to simplify and improve.

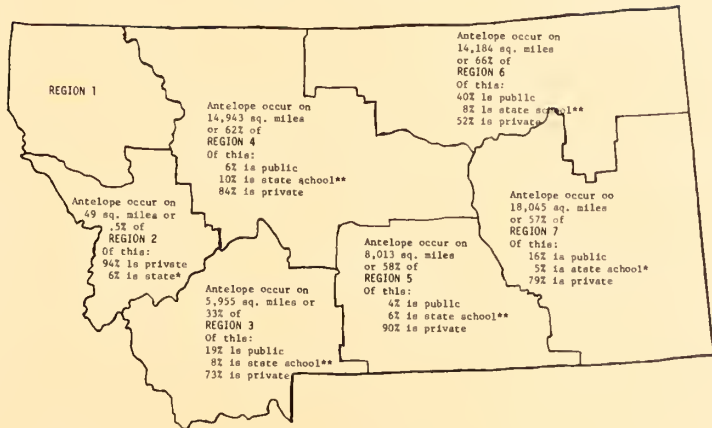
(More specific problems and strategies are listed under Regions on the following pages.)

Fig. 4.

ANTELOPE DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP

by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)

49



<sup>1</sup>Distribution includes all area where species is present at some time of the year; thus it tends to be a maximum inclusion of area the species inhabits, including marginal habitat with low population densities of the species.

\*Includes state forestry land open to public.

\*\*State school land — access dependent on private leasee.

# ANTELOPE STRATEGIC PLAN - REGION 2

## SUPPLY AND DEMAND

Antelope occur on only 49 sq. miles, or .5 percent of the land area in Region 2; this is .1 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 2 is 94 percent private ownership and 6 percent State School land.

The status of the small antelope population in Region 2 is stable, with some fluctuations.

Future objectives are to maintain this herd and provide recreational values to the public including opportunity to view them and hunt them on a limited, but sustained basis.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 2

	Antelope Harvest	Antelope Licensees Afield	Hunting Success	Antelope Hunting Recreation Days	Effort (Days Hunted Per Antelope Harvested)
1976	9	10	90%	30	3
1980	20	29	70%	80	4
1985	20	29	70%	80	4
1990	20	29	70%	80	4

6-YEAR OBJECTIVE (1977-82):	To provide 80 days of antelope hunting annually at a hunter success rate of 70 percent and an average hunting effort of 4 days/antelope harvested by 1990.
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## PROBLEMS

Limited habitat, all of it privately controlled, is available for antelope.

The population trend and status has been difficult to determine.

Concentration of most of the herd on one farmer's cropland leads to damage complaints.

Productivity of this population appears much lower than its potential.

## STRATEGIES

Manage the herd to keep its numbers compatible with the limited range. This may be possible by issuing a small number of hunting permits each year.

Endeavor to increase the efficiency of aerial counts to obtain population data.

Adjust area open to hunting so it includes only the immediate vicinity of the damage complaint area.

Evaluate production and predation and ask for coyote control if justified.



# ANTELOPE STRATEGIC PLAN - REGION 3

## SUPPLY AND DEMAND

Antelope occur on 5,955 sq. miles, or 33 percent of the land area in Region 3; this is 10 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 3 is 19 percent public ownership, 73 percent private, and 8 percent state school land. About 20 percent of private land with antelope is closed or severely restricted to public hunting. Over 50 percent of the antelope harvest comes from public land.

Antelope population trends vary considerably between 18 hunting districts in Region 3; 9 have stable populations, 6 have decreasing and 2 have increasing populations.

An average of 1,967 antelope hunters were afield annually from 1971-74, representing 7 percent of the total antelope hunters afield statewide. An average of 1,400 antelope were harvested annually from 1971 to 1974, comprising 7 percent of the statewide antelope harvest. Harvests ranged from 1,495 in 1971 to 1,029 in 1975.

Applications for permits in Region 3 increased from 4,052 in 1973 to 7,267 in 1975, and decreased to 6,007 in 1976. The ratio of applications per permit changed from 1.9:1 in 1973 to 5:1 in 1975 and 3.7:1 in 1976, indicating the relatively high degree of public interest in antelope permits available in Region 3. Future regional objectives are to maintain antelope hunting similar to that of early 1970's.

6-YEAR OBJECTIVE (1977-82) To provide 4,500 days of antelope hunting annually at a hunter success rate of 70 percent and an average hunting effort of 3.0 days/antelope harvested by 1980.

## PROBLEMS

Land uses such as heavy livestock grazing and sagebrush control reduce the carrying capacity for antelope.

Maintaining access to private and public lands is necessary to attain harvest and recreation objectives.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 3

	Antelope Harvest	Licensees Afield	Hunting Success	Antelope Hunting Recreation Days	Effort (Days Hunted Per Antelope Harvested)
Aver.					
1971-74	1,400	1,967	71%	4,400	3.2
1975	1,029	1,325	78%	3,975	3.9
1976	1,081	1,492	72%	4,476	4.1
1980	1,500	2,100	70%	4,500	3.0
1985	1,500	2,100	70%	4,500	3.0
1990	1,500	2,100	70%	4,500	3.0

## STRATEGIES

If land use intensifies on private lands, harvest levels will have to be adjusted to existing habitat capacity. Seek cooperative assistance from the U.S. Forest Service and Bureau of Land Management land managers to give adequate consideration to antelope in their planning and land management practices.

Seek cooperation of public land managers and private owners to maintain access to all public lands with antelope and improve marking of public/private boundaries. Encourage hunters to respect private property so that a reasonable degree of access to private land can be maintained.

# SUPPLY AND DEMAND

Antelope occur on 14,943 sq. miles, or 62 percent of the land area in Region 4; this is 24 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 4 is 84 percent private ownership, 6 percent public and 10 percent state school land. Over one-third of private land with antelope is closed or severely restricted to public hunting. Over 70 percent of the antelope harvest comes from private land.

Antelope population trends vary between the 11 hunting districts; 7 have stable populations, 3 are decreasing and 1 is increasing.

The average number of antelope hunters afield during 1971-74 was 3,800, representing 14 percent of the total antelope hunters afield statewide. An average of 2,515 antelope were harvested annually from 1971 to 1974, comprising 13 percent of the statewide antelope harvest. Harvests ranged from 2,942 in 1971 to 1,933 in 1975.

Applications for antelope permits in Region 4 increased from 7,801 in 1973 to 9,542 in 1975, and decreased to 8,165 in 1976. The ratio of applications per permit changed from 1.5:1 in 1973 to 2.6:1 in 1975 and 2.1:1 in 1976. Future regional objectives are to maintain antelope hunting similar to that of the 1971-74 period.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 4

	Antelope Harvest	Licensees Afield	Hunting Success	Antelope Hunting Recreation Days	Effort (Days Hunted Per Antelope Harvested)
Aver.					
1971-74	2,515	3,800	66%	9,400	3.7
1975	1,933	3,121	62%	9,363	4.8
1976	2,581	3,494	74%	10,482	4.1
1980	2,400	3,700	65%	9,600	3.0
1985	2,400	3,700	65%	9,600	3.0
1990	2,400	3,700	65%	9,600	3.0

6-YEAR OBJECTIVE (1977-82):	To provide 9,600 days of antelope hunting annually at a hunter success rate of 65 percent and an average hunting effort of 3.0 days/antelope harvested by 1980.
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## PROBLEMS

The majority of antelope area in Region 4 is privately controlled; the current trend is toward accelerated closure of private land to hunters.

Intensifying agricultural practices such as expanding cultivation, sage brush control, and heavy grazing are deteriorating antelope habitat.

## STRATEGIES

Determine by hunting district the amount and location of lands open, closed and restricted to antelope hunting and why. Ascertain what conditions are necessary to allow public hunting on private land. Control the number and distribution of hunters by (1) habitat type based on vegetation, topography and antelope biology, (2) land ownership considerations including continuing permit system that will allow some preference to landowners to hunt antelope, and (3) establishing and implementing management plans for private lands using above methods. Gain access to public lands by purchasing and/or leasing easements through private lands. Explore methods to reimburse the private landowner for use of his land by the hunters and not excluding ideas that a person using the public land for grazing at reduced fees also owes something to general public, including hunting public. (Idea of payment to counties through a percent of hunting license, or through a special stamp, should be explored.)

Encourage land management practices that consider wildlife needs and long term maintenance of soil and vegetation. Purchase key tracts of land where necessary to maintain habitat.

(continued)

PROBLEMS

The need to better determine the biological harvestable supply of antelope by habitat type and to establish hunting district boundaries based on vegetation, topography and antelope biology is apparent.

STRATEGIES

Determine habitat types from ERTS photos and other sources. Determine the biological supply of antelope by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys will be employed as well as other methods such as population modeling and thermo infrared censusing as they apply.

## ANTELOPE STRATEGIC PLAN - REGION 5

SUPPLY AND DEMAND

Antelope occur on 8,013 sq. miles, or 58 percent of the land area in Region 5; this is 13 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 5 is 90 percent private ownership, 4 percent public, and 6 percent State school land. An estimated 45 percent of privately controlled land with antelope is closed or severely restricted to public hunting. Over 95 percent of the antelope harvest comes from private land.

Antelope population trends are stable on 9 of 11 hunting districts and decreasing on 2.

The number of antelope hunters increased from 3,854 in 1971 to 7,665 in 1974 with a 4-year average of 5,750, representing 21 percent of the total antelope hunters afield statewide. An average of 4,160 antelope were harvested annually from 1971 to 1974, comprising 22 percent of the statewide antelope harvest. Harvests increased from 2,978 in 1971 to 5,321 in 1974.

Applications for antelope permits in Region 5 have increased from 9,339 in 1973 to 10,361 in 1975, and decreased to 7,583 in 1976. The ratio of applications per permit has decreased from 1.3:1 in 1973 to 1.2:1 in 1974 and 1975 to .9:1 in 1976 when supply of permits exceeded demand for them. Attainment of future objectives to increase utilization of antelope will depend greatly upon success in solving hunter distribution and access problems.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 5

	<u>Antelope Harvest</u>	<u>Licensees Afield</u>	<u>Hunting Success</u>	<u>Antelope Hunting Recreation Days</u>	<u>Effort (Days Hunted Per Antelope Harvested)</u>
Aver.					
1971-74	4,160	5,750	72%	13,400	3.4
1975	4,883	7,454	66%	22,362	4.5
1976	4,599	7,163	64%	14,321	3.1
1980	5,500	7,900	70%	16,500	3.0
1985	5,500	7,900	70%	16,500	3.0
1990	5,500	7,900	70%	16,500	3.0

6-YEAR OBJECTIVE (1977-82): To provide 16,500 days of antelope hunting annually at a hunter success rate of 70 percent and an average hunting effort of 3 days/antelope harvested by 1980.

PROBLEMS

Lack of hunter access -- nearly half of private land with antelope present is closed or severely restricted to the public. Annual biological surplus of antelope is not being utilized in these areas.

Intensifying agricultural practices such as expanding cultivation, sage brush control, and heavy grazing tend to deteriorate antelope habitat.

OBJECTIVES

Implement a continual program of monitoring land ownership status and the degree of public hunting allowed. Ascertain what conditions are necessary to allow public hunting and seek agreements with private owners to develop management of hunter numbers and distribution.

Encourage land management practices that consider wildlife needs and long term protection of soil and vegetation. Purchase key tracts of land where necessary and feasible to maintain habitat.

SUPPLY AND DEMAND

Antelope occur on 14,184 sq. miles, or 66 percent of the land area in Region 6; this is 23 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 6 is 40 percent public ownership (mainly B.L.M.), 52 percent private, and 8 percent State school land. About 15 percent of the privately controlled land is closed or severely restricted to public hunting. Nearly 50 percent of the antelope harvest comes from public land.

Population trends in 10 hunting districts are variable; 5 are decreasing, 3 stable and 2 increasing.

The number of antelope hunters during 1971-74 ranged from 2,926 to 4,472, with a 4-year average of 3,772, representing 14 percent of the total antelope hunters affield statewide. An average of 2,520 antelope were harvested annually from 1971 to 1974, comprising 13 percent of the statewide antelope harvest. Harvests ranged from 2,812 in 1971 to 1,698 in 1974.

Applications for antelope permits in Region 6 have decreased from 7,342 in 1973 to 4,597 in 1975 and 3,862 in 1976. The ratio of applications per permit has varied between 1.3:1 and 1.6:1 in that period. Future regional objectives are to maintain annual antelope harvests slightly below the level of the 1971-74 period.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 6

	Antelope Harvest	Licensees Afield	Hunting Success	Antelope Hunting Recreation Days	Effort (Days Hunted Per Antelope Harvested)
Aver. 1971-74	2,500	3,800	67%	11,300	4.5
1975	1,600	2,550	63%	7,650	4.8
1976	1,715	2,626	65%	7,878	4.6
1980	2,100	3,000	70%	8,200	4.5
1985	2,100	3,000	70%	8,500	4.5
1990	2,100	3,000	70%	9,500	4.5

6-YEAR OBJECTIVE (1977-82): To provide 9,500 days of antelope hunting annually at a hunting success rate of 70 percent and an average hunting effort of 4.5 days/antelope harvested by 1980.

PROBLEMS

Intensified agriculture including expanding cultivation for grain is reducing habitat in some hunting districts.

Lack of winter range during severe winters precludes maintaining high densities on some districts.

Some districts are underlain with coal deposits and may be strip-mined.

About half of antelope harvest comes from private land. It will be necessary to counteract trends of decreasing public access.

Landowner complaints of antelope damage to standing crops (winter wheat, flax, alfalfa) and haystacks.

STRATEGIES

Identify important antelope habitat and seek cooperation of landowners and agricultural agencies to preserve key areas.

Maintain sagebrush habitat on public and state lands through inter-agency agreements.

Identify key sagebrush areas vital to wintering antelope and strive to protect them against degradation.

Strive for optimum distribution of hunters through improved mapping and identification of public access and season setting modifications.

Strive to keep private lands open to hunting and direct hunting pressure to chronic damage complaint areas.

## ANTELOPE STRATEGIC PLAN - REGION 7

SUPPLY AND DEMAND

Antelope occur on 18,045 sq. miles, or 57 percent of the land area in Region 7; this is 29 percent of the statewide antelope distribution area. The antelope-inhabited land in Region 7 is 79 percent private ownership, 16 percent public, and 5 percent state school land. About 35 percent of privately controlled land with antelope is closed or severely restricted (including fee hunting) to public hunting. Over 80 percent of the antelope harvest comes from private land.

Antelope population trends are stable on about 50 percent of Region 7's districts, increasing on 33 percent and decreasing on the remainder.

The number of antelope hunters ranged from 11,079 to 12,820 during 1971-74 with a 4-year average of 11,650, representing 43 percent of the total antelope hunters afield statewide. An average of 8,470 antelope were harvested annually from 1971 to 1974, comprising 44 percent of the statewide antelope harvest. Harvests ranged from 9,247 in 1972 to 6,307 in 1976.

Applications for antelope permits in Region 7 have decreased from 16,673 in 1973 to 12,751 in 1975 to 8,857 in 1976 when all permits were not utilized. Future regional objectives are for significantly increased utilization of antelope in Region 7. Attainment of these objectives will depend greatly upon success in solving regional problems that follow, particularly access and hunter distribution.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR ANTELOPE IN REGION 7

	<u>Antelope Harvest</u>	<u>Licensees Afield</u>	<u>Hunting Success</u>	<u>Antelope Hunting Recreation Days</u>	<u>Effort (Days Hunted Per Antelope Harvested)</u>
Aver.					
1971-74	8,500	11,650	73%	35,000	4.1
1975	7,850	10,570	74%	31,700	4.0
1976	6,307	8,488	74%	25,464	4.0
1980	14,000	18,700	75%	56,000	4.0
1985	14,000	18,700	75%	56,000	4.0
1990	14,000	18,700	75%	56,000	4.0

6-YEAR OBJECTIVE (1977-82): To provide 56,000 days of antelope hunting annually at a hunting success rate of 75 percent and an average hunting effort of 4 days/antelope harvested by 1980.

PROBLEMS

Although approximately 45 percent of the statewide antelope harvest occurs in Region 7, a sizeable, unavailable surplus remains in most hunting districts due to restricted access.

STRATEGIES

Determine, by hunting district, the amount and location of lands open, closed and restricted to antelope hunting and the reasons why. Control the number and distribution of hunters by: 1) habitat type based on vegetation, topography, and antelope biology; 2) permit limitations; and 3) establishing and implementing management plans for private lands to accommodate hunting (e.g. currently a 420+ section single land holding in Region 7 has a prescribed management plan for antelope where the department agrees to: (1) determine the number and distribution of antelope; (2) recommend the number and distribution of hunters to accomplish the desired harvest; and (3) provide supervisory assistance during the hunting season). Gain access to sizeable public land holdings by purchasing and/or leasing easements through private lands and implementing existing plans, i.e. the S-60 program, with state and federal land managers. Provide financial inducement on an area basis (i.e. counties) from sportsmen via a "county hunter use stamp" which: 1) yields an economic gain to the area; 2) insures re-imbursement of property loss to individual landowners resulting from hunting; 3) represents a positive acceptable action from sportsmen; and 4) obligates the state to initiate and regulate the means of opening private land to hunting.

(continued)

PROBLEMS

There is a need to determine the biological, harvestable supply of antelope by habitat type/hunting district to establish hunting district boundaries based on vegetation, topography, antelope biology, and land ownership considerations.

The existing nonresident license structure of two specific types (B2 and B10) prohibits desired controls.

Intensified agricultural and energy developments are deteriorating antelope habitat. Heavy grazing, brush control, extensive cultivation and vegetation removal, coal stripping, and other activities are destroying and/or deteriorating the quality of antelope habitat.

STRATEGIES

Determine, by topographic and vegetation similarities, habitat types from ERTS and infrared photos and geological survey maps. Determine the biological supply of antelope by habitat type for each hunting district and assess the security of each type by evaluating productivity, mortality, age structure, density, distribution and effects of hunting. Intensive aerial and ground surveys, population modeling, thermo infrared censusing and specific research will be employed. Establish hunting district boundaries and seasons based on vegetation, topography, antelope biology and landownership considerations.

Introduce legislation to pattern the nonresident license structure after the resident to allow improved control of hunter distribution.

Identify key antelope habitat areas and encourage public agencies and private landowners to protect them from degradation. Promote land use planning and land management practices that will protect or enhance antelope habitat and provide guidelines for minimizing or eliminating the effects of detrimental land use practices.





## MOOSE STRATEGIC PLAN - STATEWIDE

SUPPLY AND DEMAND

The moose is the largest big game animal native to Montana. They occur on 22,982 sq. miles, or 18 percent of the State (excluding National Parks and Indian reservations), primarily in forested areas of northwestern and southwestern Montana and extending east to Red Lodge and the Smith River area of Cascade and Meagher counties. Land ownership where moose occur is 75 percent public, 24 percent private and 1 percent State-school land. An estimated 86 percent of the harvest comes from public land.

Moose populations are reported as stable in most areas and increasing in some western hunting districts.

Moose hunting has been regulated by a permit system since 1945. Statewide harvests for the 1965-69 period averaged 459; harvests for the past 5 years (1974-75) averaged 505.

Demand for moose hunting has been increasing and will continue to exceed the available supply. Total applications for permits increased from 13,007 to 16,806 from 1973 to 1976. The ratio of total applications per total permits available increased from 16 to 1 in 1973 to 22 to 1 in 1976 (or 10.2% per year).

Attainment of 1980 objectives will require improved annual utilization of harvestable moose in specific hunting districts. This will depend upon improved success in dispersing moose hunters into less accessible moose habitat, improved moose population information in specific areas, and significant reduction of illegal kills.

Sustaining the harvestable supply indicated for 1985 and 1990 will depend greatly upon success in protecting and improving moose habitat.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOOSE

	Moose Harvest	Licenses Afield	Hunting Success	Moose Hunting Recreation Days	Effort (Days Hunted Per Moose Harvested)	Ratio of Permits to Applications <sup>1</sup>
1971	474	672	71%	--	--	--
1972	427	651	66%	--	--	--
1973	597	766	78%	4,740	7.9	1 to 16
1974	532	780	68%	5,544	10.4	1 to 18
1975	498	763	65%	4,578	9.0	1 to 21
1976	376	698	54%	4,886	13.0	1 to 22
1980	685	968	70%	6,800	10.0	--
1985	665	1,000	69%	6,800	10.0	--
1990	685	1,000	69%	6,800	10.0	--

<sup>1</sup>Statewide basis; this ratio varies considerably among regions and hunting districts.

STATEWIDE GOAL	To protect and perpetuate moose and their habitat and to increase the supply of available, harvestable moose to meet demands for hunting and non-hunting recreation.
6-YEAR OBJECTIVE: (1977-82)	To provide 6,800 days of moose hunting annually at a hunting success rate of 70 percent and an average hunting effort of 10 days per moose harvested by 1980.

PROBLEMS

Illegal harvest is reported to be high in many hunting districts -- reducing the potential legal harvest for public benefit.

STRATEGIES

Seek means to increase effectiveness of law enforcement and hunter education efforts. Suggested steps include: assigning more enforcement time in problem areas; encouraging hunters and the public to provide increased assistance to enforcement personnel; placing precautionary signs in moose hunting areas; and increasing news media publicity. Many of the illegal moose are killed during elk hunting, thus, measures to allow either-sex elk hunting by limited permits only might reduce illegal moose kill.

(continued)

## MOOSE STATEWIDE (continued)

PROBLEMS

Land-use conflicts including poorly planned timber harvest, livestock grazing, brush removal, road building, subdivisions, marsh drainage, mining and energy developments are impacting on the quality and quantity of moose habitat.

Natural forest succession is replacing willows and other shrubs, important to moose, with conifers.

Moose population data and habitat inventory is not adequate for the intensity of management needed. Increased population information from extensive areas will be necessary to achieve harvest and recreation objectives for 1980.

Demand for moose permits has been increasing -- decreasing the chances for an individual to have an opportunity to hunt moose.

STRATEGIES

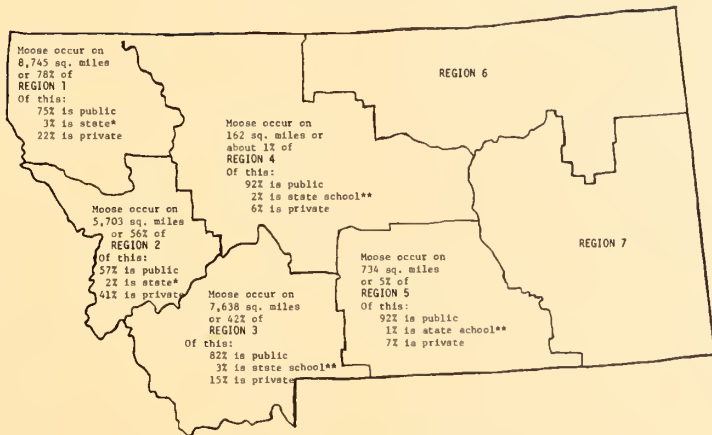
Identify important moose habitat and provide input to land managing agencies and other organizations. Use all means possible to discourage degradation of moose habitat. Support legislation protecting wildlife habitat. Urge that new forest roads be minimized and specify road closures where needed.

Assign land managers in designing timber harvests and implementing prescribed burning where moose habitat is reverting to a dense timber canopy. Maintain beaver populations at levels beneficial to moose ecology.

Assign field work schedule to include more moose survey effort on a regular basis.

Initiate a 5-year preference system to favor the applicant who has not been successful on permit applications.

MOOSE DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)



<sup>1</sup>Distribution includes all areas where species is present at some time of the year; thus it tends to be a maximum inclusion of areas the species inhabit, including marginal habitat with low population densities of the species.

\*Includes state forestry land open to public.

\*\*State school land — access dependent on private leases.

## MOOSE STRATEGIC PLAN - REGION 1

SUPPLY AND DEMAND

Moose occur on 8,745 sq. miles, or 78 percent of the land area in Region 1; this is 38 percent of the statewide moose distribution area. The moose-inhabited land in Region 1 is 78 percent public ownership (mainly U.S.F.S.) and 22 percent private. Very little of the private land with moose is restricted to public hunting. About 90 percent of the moose harvest comes from public land.

Moose populations are reported as stable in most hunting districts and increasing in a few areas. Productivity is fair to good throughout the region.

The number of moose hunters averaged 126 during 1971-74; representing 18 percent of the total moose hunters afield statewide. An average of 106 moose were harvested annually from 1971 to 1974, comprising 21 percent of the statewide moose harvest. Harvests ranged from 95 in 1971 to 112 in 1974. Applications for permits increased from 4,358 in 1973 to 5,550 in 1976, indicating the increasing demand for hunting this species in Region 1. The chance of drawing a moose permit in Region 1 decreased from 1 in 33 in 1973 to 1 in 44 in 1976.

Future objectives are geared to improve public utilization of harvestable supplies of moose in Region 1. Attainment of future objectives will require improved solutions to the problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR MOOSE IN REGION 1

	Moose Harvest	Licensees Afield	Hunting Success	Moose Hunting Recreation Days	Effort (Days Hunted Per Moose Harvested)
Aver. 1971-74	106	126	84%	1,084	10
1975	99	126	79%	756	8
1976	105	124	85%	992	8
1980	130	163	80%	1,300	10
1985	130	163	80%	1,300	10
1990	130	163	80%	1,300	10

6-YEAR OBJECTIVE (1977-82): To provide 1,300 days of moose hunting annually at a hunter success rate of 80 percent and an average hunting effort of 10 days/moose harvested by 1980.

PROBLEMS

Illegal harvest is known to be high in most hunting districts, and reduces the potential legal harvest for public benefit.

Excessive road building is deteriorating moose habitat in some areas.

Mining and oil and gas leasing threatens the security of moose habitat in some areas.

Improved knowledge of moose habitat requirements and populations is needed in northwest Montana.

STRATEGIES

Intensify hunter education and law enforcement efforts. Encourage hunters to provide assistance to enforcement personnel.

Specify road closures in logging areas where needed.

Identify important moose habitat zones and use all means possible to discourage degradation of their habitat.

Implement appropriate field research.

## MOOSE STRATEGIC PLAN - REGION 2

SUPPLY AND DEMAND

Moose occur on 5,703 sq. miles, or 56 percent of the land area in Region 2; this is 25 percent of the statewide moose distribution area. The moose-inhabited land in Region 2 is 59 percent public ownership (mainly U.S.F.S.) and 41 percent private. An estimated 15 percent of private land with moose is closed or severely restricted to hunting. About 67 percent of the moose harvest comes from public land.

Moose populations are stable and/or slightly increasing in several hunting districts. Good information is difficult to obtain and lacking in other areas.

The average number of moose hunters was 100 during 1971-74; representing 14 percent of the total moose hunters afield statewide. An average of 69 moose were harvested annually from 1971 to 1974; comprising 14 percent of the statewide moose harvest. Harvests have ranged from 43 in 1976 to 81 in 1973. Applications for permits increased from 1,737 to 2,431 in 1975. The chance of drawing a permit in Region 2 decreased from 1 in 17 in 1973 to 1 in 25 in 1976.

Future objectives are geared to improve public utilization of harvestable supplies of moose; attainment requires improved solutions to problems listed below.

6-YEAR OBJECTIVE (1977-82):	To provide 1,300 days of moose hunting annually at a hunter success rate of 70 percent and an average hunting effort of 13 days/moose harvested by 1980.
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PROBLEMS

Illegal harvest is significant and reduces the supply of animals available to the public.

Land use conflicts: subdivisions, heavy cattle grazing, poorly planned timber harvest, brush removal, marsh drainage, and mining activities may all conflict with moose habitat needs. New roads also make moose more vulnerable to hunting.

Probably more moose habitat is being lost from forest succession than any other cause; willow and other shrubs are being replaced by conifers.

Lack of moose population information.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR MOOSE IN REGION 2

	Moose Harvest	Licenses Afield	Hunting Success	Moose Hunting Recreation Days	Effort (Days Hunted Per Moose Harvested)
Aver. 1971-74	69	100	69%	942	13
1975	71	97	73%	776	11
1976	43	91	47%	910	21
1980	100	140	70%	1,200	13
1985	100	140	70%	1,200	13
1990	100	140	70%	1,200	13

STRATEGIES

Increase effectiveness of enforcement and hunter education efforts. Means of doing this would include more enforcement time spent in moose areas, putting up signs in moose areas cautioning hunters not to shoot moose mistakenly, and news media publicity. Since many moose are illegally killed in important elk hunting areas, measures which require hunters to take a closer look may help. Thus, allowing either sex elk hunting by limited permits only, might reduce illegal moose kill.

Land use zoning and subdivision regulation should be supported. Proposed drainage of marshy moose habitat should be opposed. Game managers should provide input into land management plans of land managing agencies and organizations. Urge that new roads be kept to a minimum and all roads in moose habitat be closed when the primary need is past.

Judicious timber harvest and prescribed burning should be planned in actual and potential moose habitat which is reverting to a dense timber canopy. In some locations, active beaver colonies may maintain marshy areas which provide moose habitat. Beaver populations should be maintained in such areas.

Employ, or otherwise obtain, more personnel to make the survey. Divert effort from a current activity to moose surveys.

## MOOSE STRATEGIC PLAN - REGION 3

SUPPLY AND DEMAND

Moose occur on 7,638 sq. miles, or 42 percent of the land area in Region 3; this is 33 percent of the statewide moose distribution area. The moose-inhabited land in Region 3 is 82 percent public ownership (mainly U.S.F.S.), 15 percent private, and 3 percent State school land. Over 25 percent of the private land with moose is closed or severely restricted to public hunting. About 90 percent of the moose harvest comes from public land.

Moose populations are stable on most Region 3 hunting districts.

The number of moose hunters increased from 369 in 1971 to 498 in 1974 with a 4-year average of 435; this represented 61 percent of the total moose hunters afield statewide. An average of 302 moose were harvested annually from 1971 to 1975, comprising 60 percent of the statewide moose harvest. Harvests ranged from 216 in 1976 to 370 in 1973. Applications for permits increased from 5,810 in 1973 to 8,252 in 1976. The chance of drawing a permit in Region 3 decreased from 1 in 11 in 1973 to 1 in 18 in 1976.

Future objectives are aimed at significant increases in public utilization of harvestable supplies of moose in Region 3. Attainment of stated objectives will require improved solutions to the problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR MOOSE IN REGION 3

	Moose Harvest	Licenses Afield	Hunting Success	Moose Hunting Recreation Days	Effort (Days Hunted Per Moose Harvested)
Aver. 1971-74	302	435	69%	2,711	8
1975	304	480	63%	2,880	9
1976	216	440	49%	3,080	14
1980	426	610	70%	3,826	9
1985	426	610	70%	3,826	9
1990	426	610	70%	3,826	9

6-YEAR OBJECTIVE (1977-82):	To provide 3,800 days of moose hunting annually at a hunter success rate of 70 percent and an average hunting effort of 9 days/moose harvested by 1980.
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PROBLEMS

Illegal harvest is significant in some hunting districts and reduces the supply of harvestable animals available to the public.

The annual biological surplus is not being utilized in some hunting districts.

Willow stand eradication for livestock operations is reducing winter carrying capacity for moose in some locations.

Moose habitat inventory and population data is not adequate for the intensity of management needed.

STRATEGIES

Increase effectiveness of enforcement and hunter education efforts. Stress the need for improved hunter ethics including "self policing" of their ranks.

Allow additional antlered bulls to be harvested over and above either-aex quotas.

Identify areas of conflict and discourage destruction of riparian vegetation.

Assign field work schedule to include more moose survey effort on a regular basis. Increased population information from extensive areas will be necessary to achieve harvest and recreation objectives by 1980.

## MOOSE STRATEGIC PLAN - REGION 4

SUPPLY AND DEMAND

Moose occur on 162 sq. miles, or 1 percent of the land area in Region 4; this is 1 percent of the statewide moose distribution area. The moose-inhabited land in Region 4 is 92 percent public ownership (mainly U.S.F.S.), 6 percent private, and 2 percent State school land.

Moose populations and distribution status is currently not well known. Very limited hunting has been allowed in occasional years. Future limited hunts are anticipated if sufficient field data can be collected to justify them.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR MOOSE IN REGION 4

<u>Moose</u> <u>Harvest</u>	<u>Moose</u> <u>Licenses</u> <u>Afield</u>	<u>Hunting</u> <u>Success</u>	<u>Moose Hunting</u> <u>Recreation</u> <u>Days</u>	<u>Effort</u> <u>(Days Hunted</u> <u>Per Moose</u> <u>Harvested)</u>
Aver. 1971-74				
1975	(no season)			
1980	(future harvest objective pending improved field data)			

6-YEAR OBJECTIVE (1977-82): To determine by 1980 whether a huntable population of moose exists in Region 4.

PROBLEMS

Distribution of moose in region, population sizes and interspecific competition is not adequately known.

STRATEGIES

Determine the distribution of moose in Region 4 and their relative numbers. Determine if competition with other game species or livestock is affecting them and how, and make adjustments accordingly.

## MOOSE STRATEGIC PLAN - REGION 5

SUPPLY AND DEMAND

Moose occur on 734 sq. miles, or 5 percent of the land area in Region 5; this is 3 percent of the statewide moose distribution area. The moose-inhabited land in Region 5 is 92 percent public ownership (mainly U.S.F.S.), 7 percent private, and 1 percent state school land. About 90 percent of the moose harvest comes from public land.

Moose populations are stable in some areas and declining in others; information on productivity is difficult to obtain and lacking in most areas.

An average of 54 moose hunters hunted in Region 5 during 1971 to 1974; this represented 8 percent of the total moose hunters afield statewide. An average of 29 moose were harvested annually from 1971 to 1974, comprising 6 percent of the statewide moose harvest. Harvests ranged from 12 in 1976 to 35 in 1973. Applications for permits increased from 579 in 1973 to 679 in 1976. The chance of drawing a permit decreased from 1 in 9 in 1973 to 1 in 15 in 1976.

Future objectives are geared to maintain harvest rates similar to those of the early 1970's in Region 5. Attainment of stated objectives will require improved solutions to problems listed below.

PAST, CURRENT AND PROJECTED MANAGEMENT PARAMETERS FOR MOOSE IN REGION 5

	<u>Moose Harvest</u>	<u>Licensees Afield</u>	<u>Hunting Success</u>	<u>Moose Hunting Recreation Days</u>	<u>Effort (Days Hunted Per Moose Harvested)</u>
Aver. 1971-74	29	53	55%	405	13
1975	22	57	39%	456	21
1976	12	43	28%	387	32
1980	30	55	55%	400	13
1985	30	55	55%	400	13
1990	30	55	55%	400	13

6-YEAR OBJECTIVE (1977-82):	To provide 400 days of moose hunting annually at a hunter success rate of 55 percent and an average hunting effort of 13 days/moose harvested by 1980.
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PROBLEMS

Moose population data are difficult to obtain but moose appear to be declining in portions of some hunting districts.

Recent harvests have been concentrated in most accessible areas.

Moose habitat is gradually declining over much of the region due to forest succession.

STRATEGIES

The harvest will be limited to bulls only in these units until population information indicates justification for either sex. Increased emphasis on moose population surveys will be required.

Some hunting districts will be divided into smaller units and hunting pressure more evenly distributed by allocation of hunting permits within these units.

Continue to seek cooperative efforts of U.S. Forest Service to implement prescribed burning and timber cutting designed to improve moose habitat over significant areas.



# BIGHORN SHEEP STRATEGIC PLAN - STATEWIDE

67

## SUPPLY AND DEMAND

Bighorn sheep occur on 3,504 sq. miles, or 3 percent of the state (excluding National Parks and Indian reservations). Eleven major native herds of bighorns exist in Montana and numerous other areas have been stocked by transplanting with variable results. Land ownership status where these wild sheep occur is over 95 percent public, 4 percent private and less than 1 percent State school land. Over 95 percent of the sheep harvest comes from public land.

Bighorn harvests, which are controlled by a permit system, varied between 55 and 80 for the 1959-69 period with an average annual harvest of 70 for that period. The average annual harvest for the 1971-75 period was 93. Bighorn populations appear to be stable or increasing in most of the hunting districts. Somewhat higher harvest rates probably can be sustained in some areas to increase the annual supply of harvestable sheep. An "unlimited" number of permits has been allowed in some hunting districts where rugged terrain and difficult access exists -- these areas provide maximum sheep hunting opportunity and recreation at very low hunting success.

Demand for bighorn sheep hunting is increasing and will continue to exceed supply. Applications for sheep permits increased from 2,619 in 1973 to 4,310 in 1976. Despite increased applications, the ratio of total applications to total permits has decreased from 1:34 in 1973 to 1:26 in 1976; however, utilization of certain herds has allowed a recent increase in the number of permits available.

Attainment of future objectives will depend upon success in solving statewide problems listed on the next page and regional problems.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.	59L <sup>1</sup>	78L	76% L	54DL	9 L
1971-74	33UL <sup>2</sup>	653UL	5% UL	5,481UL	119 UL
	92	721		6,021	
1975	89L	121L	1/4% L	757L	8.5L
	10UL	631UL	2% UL	4,417UL	442 UL
	99	752		5,174	
1976	100L	142L	70% L	844L	8 L
	20UL	531UL	4% UL	3,717UL	186 UL
	120	673		4,561	
1980	167L	220L	75% L	1,500L	9 L
	36UL	780UL	5% UL	5,964UL	165 UL
	203	1,000		7,464	
1985	167L	220L	75% L	1,500L	9 L
	36UL	780UL	5% UL	5,964UL	165 UL
	203	1,000		7,464	
1990	167L	220L	75% L	1,500L	9 L
	36UL	780UL	5% UL	5,964UL	165 UL
	203	1,000		7,464	

<sup>1</sup>Limited number permits

<sup>2</sup>Unlimited permits in areas of severe, rugged terrain

STATEWIDE GOAL:	To protect and perpetuate bighorn sheep and their habitat and to increase the supply of available, harvestable sheep to meet demands for hunting and nonhunting recreation.
6-YEAR OBJECTIVE: (1977-82)	To provide 7,500 days of bighorn sheep hunting annually at a hunting success rate of 75 percent and 5 percent and an average hunting effort of 9 and 165 days per sheep harvested, in limited and unlimited areas, respectively, by 1980.

(continued)

## BIGHORN SHEEP STATEWIDE (continued)

PROBLEMS

Bighorn sheep population and habitat inventory is not adequate for the intensity of management needed if the harvest and recreation objectives for 1980 and the long term goal of protecting sheep and their habitat is to be attained.

Specific herds are currently under harvested. Increased annual harvests could be sustained and are necessary to maintain productive herd base and minimize habitat deterioration and lung worm disease.

Sheep management philosophy and hunting regulations such as criteria for designating trophy rams and need for harvesting ewes, are usually accompanied by considerable disagreement between various sheep hunters and others.

Competition exists between bighorn sheep and other big game species.

Land uses such as logging and forest road building, mining and grazing are deteriorating the quality and quantity of big habitat.

Illegal harvest may be a significant drain on some populations.

Delays are being encountered on some National Forests in allowing additional bighorn sheep transplants.

Demand for sheep hunting permits is rapidly increasing, reducing the chances for an individual to have the opportunity to hunt bighorn sheep.

STRATEGIES

Ongoing intensive field studies of bighorn populations should continue and additional field efforts redirected in order to ascertain population status and trends over extensive areas.

Increased quotas for both rams and ewes are necessary on specific herds. Certain regulations should be modified. The 7-year waiting period after harvesting a ewe is too restrictive and is precluding participation by ewe-hunters in some areas. Ewe hunting is essential as a herd management tool and should not be under the restrictions of harvesting trophy rams. The 3/4 curl regulation on rams should be discontinued in some areas.

Determine better what the public desires in terms of hunting and other recreational uses and values for wild bighorn sheep. Establish legal ram regulations that are more interpretable and/or acceptable to the various types of sheep hunters and other interested persons. Establish specific herd management objectives that are consistent with the capabilities of the sheep population and its habitat and that recognize the various types of hunting and other recreational uses desired by the public.

Determine the capability of specific areas and identify to the public the consequences of maintaining current management on a species-by-species basis. Establish species priorities for specific areas and adjust management practices accordingly.

Identify sheep habitat areas and encourage only those land management practices that will protect or enhance wild sheep habitat. Insist that public roads not be built that interfere with the welfare of bighorn sheep.

Increase enforcement effort in problem areas and seek improved public cooperation through news media. Put up signs on certain bighorn areas cautioning against mistaking sheep for deer during the big game season. Legalize the harvest of any sized ram in limited permit areas. Upgrade the knowledge of permit holders through educational sessions and/or materials.

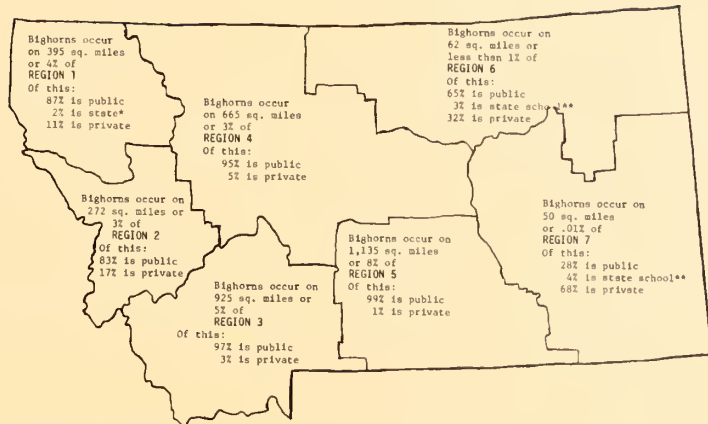
Seek cooperation from the U.S. Forest Service to transplant bighorn sheep into areas now deemed to be suitable.

Initiate a preference system (5 years) to favor the applicant who has not been successful before.

Fig. 6

BIGHORN SHEEP DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)

69



<sup>1</sup>Distribution includes all areas where species is present at some time of the year; thus it tends to be a maximum inclusion of areas the species inhabits, including marginal habitat with low population densities of the species.

\*Includes state forestry land open to public.

\*\*State school land — access dependent on private lessee.

## BIGHORN SHEEP STRATEGIC PLAN - REGION 1

SUPPLY AND DEMAND

Bighorn sheep occur on 395 sq. miles, or 4 percent of the land area in Region 1; this is 11 percent of the statewide bighorn sheep distribution area. The bighorn sheep-inhabited land in Region 1 is 87 percent public ownership (mainly U.S.F.S.) and 13 percent private. All of the sheep harvest comes from public land.

The bighorn sheep population is increasing in both bighorn sheep hunting districts of Region 1.

An average of 10 bighorn sheep hunters were afield in Region 1 from 1971 to 1974; this represented 1 percent of the total bighorn sheep hunters afield statewide. An average of 8 sheep were harvested annually from 1971 to 1974, comprising 8 percent of the statewide sheep harvest. Harvests ranged from 6 in 1973 to 20 in 1976.

Applications for bighorn sheep permits in Region 1 increased from 150 in 1973 to 705 in 1976. The ratio of applications per permit in Region 1 changed from 15:1 in 1973 to 41:1 in 1975 and 35:1 in 1976.

Future objectives are for increased harvests of sheep; attainment of objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licenses Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.					
1971-74	8	10	85%	136	17
1975	12	12	100%	84	7
1976	20	20	100%	140	7
1980	34	40	88%	408	12
1985	34	40	88%	400	12
1990	34	40	88%	400	12

6-YEAR OBJECTIVE (1977-82):	To provide 400 days of bighorn sheep hunting annually at a hunting success rate of 85 percent and an average hunting effort of 12 days/sheep harvested by 1980.
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PROBLEMS

Increasing sheep populations are currently underharvested; increased harvests are possible and necessary to maintain productive herds and minimize range deterioration and lungworm disease.

The 7-year restriction on sheep hunting following taking of a ewe is unnecessarily restrictive.

Improved population and ecological information is needed on specific herds.

Illegal harvest continues on winter range areas close to public highways.

Competition exists between other big game species and bighorn sheep in some areas.

Land uses such as extensive logging may be conflicting with bighorn sheep management.

Unnecessary delays are being encountered in receiving approval for additional bighorn sheep transplants on public land.

STRATEGIES

Increased quotas for both rams and ewes are being implemented. Transplanting may also be necessary if suitable sites can be found and approved on the National Forest. Discontinue three-quarter curl regulations.

Allow successful ewe hunters to apply for a ewe or ram permit without a 7-year waiting period. Ewe hunting is essential as a herd management tool and should not be under the restrictions of harvesting trophy rams.

Intensive study of the Ural-Tweed herd has been initiated.

Improve effectiveness of law enforcement and seek increased public cooperation in eliminating the problem.

Establish species management goals and priorities for specific areas and adjust harvests and management emphases accordingly.

Identify sheep habitat areas and encourage only those forestry practices that may enhance sheep habitat.

Request U.S. Forest Service to change current policy in Lolo Forest and cooperate in transplanting bighorn sheep into areas now deemed to be suitable.

SUPPLY AND DEMAND

Bighorn sheep occur on 272 sq. miles, or 3 percent of the land area in Region 2; this is 8 percent of the statewide bighorn distribution area. The sheep-inhabited land in Region 2 is 83 percent public ownership (mainly U.S.F.S.) and 17 percent private. About 62 percent of the bighorn sheep harvest comes from public land.

The bighorn sheep populations are stable or increasing in Region 2's sheep hunting districts.

An average of 9 bighorn sheep hunters were afield in Region 2 from 1971 to 1974; this represented 1 percent of the total bighorn sheep hunters afield statewide. An average of 4 sheep were harvested annually from 1971 to 1974, comprising 4 percent of the statewide bighorn sheep harvest. Harvests ranged from 1 in 1971 to 13 in 1976.

Applications for bighorn sheep permits decreased from 484 in 1973 to 320 in 1974 and then increased to 669 in 1976. The ratio of applications per permit in Region 2 has varied from 48:1 in 1973 to 21:1 in 1974 to 37:1 in 1976.

Future objectives are to increase the annual sustained harvest of sheep; attainment of objectives will depend upon success in solving problems listed below.

**6-YEAR OBJECTIVE(1977-82):** To provide 300 days of bighorn sheep hunting annually at a hunting success rate of 45 percent and an average hunting effort of 16 days/sheep harvested by 1980.

PROBLEMS

Population control in thriving populations is difficult because of constraints on shooting females.

Lamb mortality is high in some areas, leading to slow population gains and few, if any, hunting opportunities.

Illegal kill may be a significant drain on some populations.

Some apparently suitable bighorn habitat does not have any bighorns. Unnecessary delays are being encountered in receiving approval for additional transplants in certain public areas.

Increased information is needed on specific sheep populations and habitats.

Encroachment on important bighorn habitat by expanding forest road systems.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.					
1971-74	4	9	44%	120	16
1975	11	15	73%	180	16
1976	13	18	72%	180	14
1980	20	40	45%	320	16
1985	20	40	45%	300	16
1990	20	40	45%	300	16

STRATEGIES

Trap and transplant ewes and lambs if release sites are available. Support legislation to remove seven-year waiting period for successful hunters who kill ewes.

Evaluate causes of lamb mortality and request coyote control assistance if indicated. Endeavor to maintain ranges in good condition by recommending grazing adjustments on public land, lease or acquisition on private lands, and keeping game numbers within carrying capacity on all ranges.

Increase publicity through news media. Put up signs on bighorn sheep areas cautioning against mistaking sheep for deer. Increase enforcement effort in sheep areas. Legalize harvest of any sized ram in limited permit areas.

Make the required habitat surveys, obtain landowner consent and request a bighorn transplant from an available source. Seek improved cooperation from U.S. Forest Service to transplant bighorns into areas that have been judged to be suitable.

Employ, or otherwise obtain, more personnel to make the surveys. Divert effort from some current activities to sheep surveys.

Insist that public roads not be built that interfere with the welfare of bighorn sheep.

## BIGHORN SHEEP STRATEGIC PLAN - REGION 3

SUPPLY AND DEMAND

Bighorn sheep occur on 925 sq. miles, or 5 percent of the land area in Region 3; this is 26 percent of the statewide bighorn sheep distribution area. The sheep-inhabited land in Region 3 is 97 percent public ownership (mainly U.S.F.S.) and 3 percent private. About 95 percent of the sheep harvest comes from public land.

The bighorn sheep populations are stable in Region 3.

An average of 385 bighorn sheep hunters were afield in Region 3 from 1971 to 1974; this represented 53 percent of the total bighorn sheep hunters afield statewide. An average of 27 sheep were harvested annually from 1971 to 1974, comprising 26 percent of the statewide sheep harvest. Harvests ranged from 13 to 30 during 1971-74.

Applications for limited bighorn sheep permits have increased from 257 in 1973 to 315 in 1975 and 311 in 1976. The ratio of applications per limited permit ranged from 17:1 to 21:1 from 1973 to 1975 to 62:1 in 1976.

Future objectives are to maintain sheep harvests similar to the 1971-74 period. Attainment of objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.	6 L*	12 L	50% L	132 L	22 L
1971-74	21 UL	373 UL	5% UL	3,200 UL	188 UL
	5 L	15 L	33% L	165 L	33 L
1975	5 UL	363 UL	1% UL	2,541 UL	508 UL
	0 L	3 L	0% L	15 L	--
1976	11 UL	334 UL	3% UL	2,345 UL	213 UL
	6 L	12 L	50% L	132 L	22 L
1980	24 UL	480 UL	5% UL	3,264 UL	136 UL
	6 L	12 L	50% L	132 L	22 L
1985	24 UL	480 UL	5% UL	3,264 UL	136 UL
	6 L	12 L	50% L	132 L	22 L
1990	24 UL	480 UL	5% UL	3,264 UL	136 UL

\*Limited and Unlimited bighorn sheep hunting districts.

6-YEAR OBJECTIVE (1977-82):

To provide 3,400 days of bighorn sheep hunting annually at a hunting success rate of 50 and 5 percent and an average hunting effort of 22 and 136 days/sheep harvested, in limited and unlimited areas, respectively by 1980.

PROBLEMS

Increased information is needed on sheep populations and habitats.

Sheep hunting regulations, criteria for designating trophy rams, ewe harvests, etc., are usually accompanied by considerable disagreement between various sheep hunters and others.

STRATEGIES

Field work priorities are being changed to intensify collection of sheep population status information.

Establish legal ram regulations that are more interpretable and/or acceptable to sheep hunters and other interested persons. Determine better what the public wants in terms of hunting and other uses of wild sheep. Modify requirement of 7-year waiting period for successful ewe permit holders so that ewe permits can be more effectively used where needed in future management.

# BIGHORN SHEEP STRATEGIC PLAN - REGION 4

## SUPPLY AND DEMAND

Bighorn sheep occur on 665 sq. miles, or 3 percent of the land area in Region 4; this is 19 percent of the statewide bighorn sheep distribution area. The sheep-inhabited land in Region 4 is 95 percent public ownership (mainly U.S.F.S.) and 5 percent private. All of the bighorn sheep harvest comes from public land.

Bighorn sheep populations are increasing in Region 4.

An average of 45 bighorn sheep hunters were afield in Region 4 from 1971 to 1974; this represented 6 percent of the total bighorn sheep hunters afield statewide. An average of 40 sheep were harvested annually from 1971 to 1974, comprising 38 percent of the statewide sheep harvest. Harvests ranged from 32 in 1972 to 66 in 1976.

Applications for sheep permits increased from 1,640 in 1973 to 2,184 in 1976. During the same period the ratio of applications per permit in Region 4 has changed from 41:1 (1973) to 18:1 (1976) as an increasing number of permits has become feasible. Future objectives are to gradually increase the utilization rate of Region 4's sheep; attainment of future objectives will depend upon success in solving problems listed below.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licenses Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.					
1971-74	40	45	88%	200	5
1975	59	77	77%	308	5
1976	66	99	66%	495	7
1980	100	120	85%	600	6
1985	100	120	85%	600	6
1990	100	120	85%	600	6

6-YEAR OBJECTIVE (1977-82):	To provide 600 days of bighorn sheep hunting annually at a hunting success rate of 85 percent and an average hunting effort of 6 days/sheep harvested by 1980.
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## PROBLEMS

Adequate harvests are needed to maintain a productive herd and prevent range deterioration and disease. Harvests should include ewes; use of ewe permits is discouraged by seven-year waiting period regulation.

Coyote predation.

Basic information needed on transplanted herds.

Interspecific competition between sheep and other big game.

Movements to curtail hunting and place bighorn sheep on the threatened or endangered list.

Continuation of Sun River Game Preserve precludes proper management of sheep.

## STRATEGIES

Continue intensive work to determine production and survival on various herds so realistic harvests (or trapping and transplanting) can be attained to assure most productive herd size. Work toward getting waiting period for successful ewe permit holders reduced. Continue either sex and ewe permit issuance in Sun River area. Continue annual classification and counts of Sun River herds.

If coyotes are a significant problem in any given area, control them.

Strive to get all information possible on transplanted herds. In this way, we will hopefully be able to cause better "take" of transplanted herds and determine beforehand if an area is suitable for transplant.

Evaluate interspecific competition in various sheep herds (especially Sun River) and set seasons accordingly.

Intensify field studies of sheep population status and keep public informed of their status and the necessity of herd control to maintain and improve productivity.

Strive to abandon Sun River Game Preserve.

## BIGHORN SHEEP STRATEGIC PLAN - REGION 5

SUPPLY AND DEMAND

Bighorn sheep occur on 1,135 sq. miles, or 8 percent of the land area in Region 5; this is 32 percent of the statewide bighorn sheep distribution area. The bighorn sheep-inhabited land in Region 5 is 99 percent public ownership (mainly U.S.F.S.) and 1 percent private. All of the sheep harvest comes from public land.

The bighorn sheep population is stable in Region 5.

An average of 280 bighorn sheep hunters were afield in Region 5 from 1971 to 1974; this represented 38 percent of the total bighorn sheep hunters afield statewide. An average of 12 sheep were harvested annually from 1971 to 1974, comprising 13 percent of the statewide sheep harvest. Harvests ranged from 11 in 1971 to 15 in 1974 and 5 in 1975.

All bighorn sheep hunting districts in Region 5 have unlimited permits available as the terrain is high, rugged and difficult to hunt and success is low. Hunting is closed when harvest quotas are being reached. The number of hunters afield increased from 337 in 1973 to 388 in 1974 and decreased to 196 in 1976.

Future objectives are to maintain sheep harvests similar to the 1971-74 period. Attainment of objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.					
1971-74	12	266	5%	2,700	207
1975	5	268	2%	1,876	375
1976	5	196	3%	1,372	274
1980	12	300	4%	2,700	225
1985	12	300	4%	2,700	225
1990	12	300	4%	2,700	225

6-YEAR OBJECTIVE (1977-82):

To provide 2,700 days of bighorn sheep hunting annually at a hunting success rate of 4 percent and an average hunting effort of 225 days/sheep harvested by 1980.

PROBLEMS

Improved information is needed on sheep population status.

Some range deterioration is occurring, particularly on the high winter range in the Rosebuda and lambing areas in Rosebuda and Stillwater. Some herd reduction may be needed.

Rocker and Gardiner segment needs information on population, range and movement. Clarification of interaction between Stillwater and Gardiner herds is also very important.

Possible competition between sheep and goats.

Trophy ram hunting should be discouraged in areas needing population control.

STRATEGIES

Additional field time will have to be assigned to bighorn sheep studies; either by changes of work priorities or assignment of additional personnel.

Issuing of ewe permits is anticipated and discouragement of 7-year waiting period should be sought for legislative action.

Students or preferably a full-time man is needed. Work priorities may need adjusting.

Study on goats needed.

Departmental agreement and objective should be sought and encouraged.



## BIGHORN SHEEP STRATEGIC PLAN - REGION 6

75

SUPPLY AND DEMAND

Bighorn sheep occur on about 62 square miles, less than 1 percent of the land area in Region 6; this is 2 percent of the statewide bighorn sheep distribution area. The bighorn sheep-inhabited land in Region 6 is 65 percent public, 3 percent state school land, and 32 percent private ownership.

Bighorns were planted in the Little Rockies area during 1973 and 1974. Their current status is yet unknown. It is possible that limited permit hunting may be allowed by 1980.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver. 1971-74					
1975					
1980	5	7	70%	50	10
1985	5	7	70%	50	10
1990	5	7	70%	50	10

6-YEAR OBJECTIVE (1977-82): To provide 50 days of bighorn sheep hunting annually at a hunting success rate of 70 percent and an average hunting effort of 10 days/sheep harvested by 1980.

PROBLEMS

Distraction of habitat by gold and silver mining activities.

Illegal harvest of bighorn sheep.

STRATEGIES

Identify key bighorn habitat and conflict areas and urge increased protection for bighorns by public land managers.

Increase enforcement efforts and seek improved public cooperation.

## BIGHORN SHEEP STRATEGIC PLAN - REGION 7

SUPPLY AND DEMAND

Bighorn sheep occur on 50 sq. miles, or .01 percent of the land area in Region 7; this is 1 percent of the statewide bighorn sheep distribution area. The bighorn sheep-inhabited land in Region 7 is about 30 percent public ownership and 70 percent private.

The bighorn sheep population is stable.

Two bighorn sheep hunters were afield in Region 7 from 1971 to 1974; this represented .02 percent of the total bighorn sheep hunters afield statewide. An average of 1 sheep was harvested annually from 1971 to 1974, comprising 1 percent of the statewide bighorn sheep harvest. Harvests ranged from 0 in 1972 to 2 in 1974.

Applications for two bighorn sheep permits in Region 7 have increased from 88 in 1973 to 127 in 1976.

Future objectives are to maintain this limited herd in sufficient numbers to continue the current rate of harvest and hunting opportunity.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BIGHORN SHEEP

	Bighorn Sheep Harvest	Licensees Afield	Hunting Success	Bighorn Sheep Hunting Recreation Days	Effort (Days Hunted Per Sheep Harvested)
Aver.					
1971-74	1	2	50%	20	12
1975	2	2	100%	16	8
1976	1	2	50%	10	10
1980	2	2	100%	20	10
1985	2	2	100%	20	10
1990	2	2	100%	20	10

6-YEAR OBJECTIVE (1977-82): To provide 20 days of bighorn sheep hunting annually at a hunting success rate of 100 percent and an average hunting effort of 10 days/sheep harvested by 1980.

PROBLEMS

Access to private and public lands where bighorns occur is severely restricted.

Heavy grazing by livestock.

STRATEGIES

Determine why the land is closed and what measures are needed to allow some hunting.

Identify important bighorn sheep habitat and conflict areas and seek improved range management that considers forage needs of bighorns.

# MOUNTAIN GOAT STRATEGIC PLAN - STATEWIDE

71

## SUPPLY AND DEMAND

Mountain goats are native to the major mountain ranges of western Montana and have been introduced to those isolated mountain ranges where habitat is suitable. They are known to occur on 5,290 sq. miles or 4 percent of the State (excluding National Parks and Indian reservations). Land ownership where goats occur is 49 percent public and 6 percent private land. Over 98 percent of the harvest has come from public land.

Goat populations are stable or increasing in most districts, decreasing in a few units and undetermined in some.

Mountain goat hunting has been regulated by a permit system since 1953. The average annual harvest for the 1959-69 period was 384 (including limited and unlimited permit areas). Harvests for 1972-75 (limited permits only) ranged between 234 and 306 and averaged 264. A higher annual harvest rate probably could be sustained in some units to increase the overall harvestable supply.

Demand for goat hunting is increasing and will continue to exceed the supply. Total applications for permits increased from 3,699 to 4,683 between 1973 and 1975. The ratio of total applications to total permits has increased from 5.8:1 in 1973 to 8.6:1 in 1976.

Future objectives are to increase the statewide harvest; attainment of objectives will depend upon success in solving statewide and regional problems listed for mountain goat management.

## PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOATS

	Goat Harvest	Licenses Afield	Hunting Success	Goat Hunting Recreation Days	Effort (Days Hunted Per Goat Harvested)
1972	234	546	43%	--	--
1973	280	556	50%	2,407	8
1974	306	571	54%	2,745	9
1975	237	508	47%	2,540	11
1976	302	500	61%	2,500	8
1980	346	666	50%	3,100	9
1985	346	686	50%	3,100	9
1990	346	686	50%	3,100	9

### STATEWIDE GOAL:

To protect and perpetuate mountain goats and their habitat and to increase the supply of available, harvestable goats to meet demands for hunting and non-hunting recreation.

### 6-YEAR OBJECTIVE (1977-82):

To provide 3,100 days of mountain goat hunting annually at a hunting success rate of 50 percent and an average hunting effort of 9 days per goat harvested by 1980.

## PROBLEMS

More intensive population status and trend information is needed for specific herds if 1980 objectives are to be attained.

## STRATEGIES

More field effort needs to be assigned or re-directed to complete goat population surveys over extensive areas. Intensive studies of specific herd population dynamics and habitat relationships are necessary to evaluate the impact of various utilization rates and/or land use encroachments on goat habitat.

(continued)

PROBLEMS

Expanding road systems due to logging and/or energy developments and explorations are lowering the security of existing goat habitat.

Goat hunters tend to concentrate in the more accessible areas. The severity of terrain makes it difficult to attain proper distribution of hunters throughout goat habitat. Many hunters may tend to shoot first goat they see, which may cause selectivity of females.

Demand for goat hunting permits is rapidly increasing, reducing the chance for an individual to have the opportunity to hunt goats.

STRATEGIES

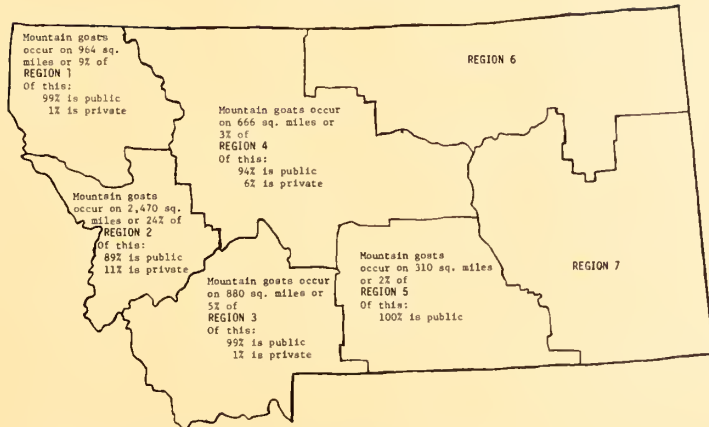
Identify goat habitat and seek cooperation of public land managers to prevent road building and/or implement road closures as necessary to maintain or enhance security of goat habitat. Provide assistance to public land managers to seek means to enhance goat habitat.

Create smaller hunting districts based on goat distribution, population status and production and survival. Allocate hunting permits to more specific areas to cause a wider distribution of hunters. Provide goat permittees with information on goat habits, social behavior and local distribution so that hunters will tend to disperse themselves and include more males in the harvest.

Initiate a preference system (5 years) that would favor the applicant who has not been successful before.

(More specific problems and strategies are listed by Regions on following pages.)

MOUNTAIN GOAT DISTRIBUTION<sup>1</sup> AND RELATIONSHIP TO LAND OWNERSHIP  
by  
Fish and Game Regions  
(Not Including Indian Reservations or National Parks)



<sup>1</sup>Distribution includes all area where species is present at some time of the year; thus it tends to be a maximum inclusion of area the species inhabits, including marginal habitat with low population densities of the species.

## MOUNTAIN GOAT STRATEGIC PLAN - REGION 1

SUPPLY AND DEMAND

Mountain goats occur on 964 sq. miles, or 9 percent of the land area in Region 1; this is 18 percent of the statewide mountain goat distribution area. The mountain goat-inhabited land in Region 1 is 99 percent public ownership (mainly U.S.F.S.) and 1 percent private. All of the goat harvest comes from public land.

Goat populations are stable or increasing in goat hunting districts of Region 1.

An average of 118 hunters were afield from 1972 to 1975 with limited quotas; this represented 18 percent of the total goat hunters afield statewide. An average of 46 mountain goats were harvested annually from 1972 to 1974, comprising 16 percent of the statewide goat harvest. Harvests ranged from 34 in 1972 to 62 in 1976.

Applications for goat permits in Region 1 increased from 678 in 1973 to 1,013 in 1976. The ratio of applications per permit in Region 1 increased from 4.5:1 in 1973 to 7.9:1 in 1976.

Future objectives are to increase goat harvests and recreation; attainment of objectives will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOATS

	Mountain Goat Harvest	Licensees Afield	Hunting Success	Goat Hunting Recreation Days	Effort (Days Hunted Per Goat Harvested)
Aver.					
1972-74	46	123	38%	645	12
1975	51	114	46%	680	13
1976	62	112	55%	672	11
1980	65	130	50%	900	14
1985	65	130	50%	900	14
1990	65	130	50%	900	14

6-YEAR OBJECTIVE (1977-82):

To provide 900 days of mountain goat hunting annually at a hunting success rate of 50 percent and an average hunting effort of 14 days/goat harvested by 1980.

PROBLEMS

Excessive access through numerous forest roads entering goat habitat lowers habitat security against man-caused activities including legal and illegal hunting.

Many hunters tend to shoot first goat they see in most accessible areas -- which may emphasize harvest of females.

Weather conditions preclude systematic aerial surveys for goat population data.

Oil, gas and mineral exploration and associated road-building and increased human activity will deteriorate mountain goat habitat.

STRATEGIES

Cooperate with responsible authorities to implement road closure as necessary to improve security of goat habitat. Provide information on location of goat habitat to timber management and other land-use planners and encourage adequate consideration for needs of mountain goats.

Provide goat permittees with information on goat habits and social behavior so they are better able to include more males in the harvest.

Continue priority for availability of adequate personnel to carry out goat survey flights as conditions allow.

Identify important mountain goat habitat and conflict areas and seek cooperation to protect goat habitat and minimize degradation. Eliminate or curtail use of expanded road systems that do develop.

## MOUNTAIN GOAT STRATEGIC PLAN - REGION 2

SUPPLY AND DEMAND

Mountain goats occur on 2,470 sq. miles, or 24 percent of the land area in Region 2; this is 47 percent of the statewide goat distribution area. The mountain goat-inhabited land in Region 2 is 89 percent public ownership (mainly U.S.F.S.) and 11 percent private. About 96 percent of the goat harvest comes from public land.

Goat population trends are stable or increasing where known and undetermined on some hunting districts.

An average of 159 goat hunters were afield in Region 2 during 1971 to 1974; this represented 26 percent of the total goat hunters afield statewide. An average of 79 mountain goats were harvested annually from 1971 to 1974, comprising 28 percent of the statewide goat harvest. Harvests ranged from 64 in 1971 to 106 in 1976.

Applications for goat permits in Region 2 increased from 816 in 1973 to 1,177 in 1975. The ratio of applications per permit in Region 2 has increased from 4.5:1 in 1973 to 7:1 in 1975 and 6:1 in 1976. Future objectives are to increase goat harvest and recreation; attainment will depend upon success in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOAT

	Mountain Goat <u>Harvest</u>	Licenses <u>Afield</u>	Hunting <u>Success</u>	Goat Hunting Recreation <u>Days</u>	Effort (Days Hunted Per Goat Harvested)
Aver.					
1971-74	79	159	50%	632	8
1975	74	168	44%	840	11
1976	106	167	63%	835	8
1980	90	180	50%	700	8
1985	90	180	50%	700	8
1990	90	180	50%	700	8

6-YEAR OBJECTIVE (1977-82): To provide 700 days of mountain goat hunting annually at a hunting success rate of 50 percent and an average hunting effort of 8 days/goat harvested by 1980.
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PROBLEMS

Population data are difficult to obtain and lacking on some districts.

Hunters tend to concentrate in more accessible areas.

Forest access roads for timber harvest in some areas encroach on goat habitat, making hunter access easier and leading to possible local over-harvest.

All suitable habitat not currently stocked for mountain goats.

STRATEGIES

Employ, or otherwise obtain, more personnel to obtain needed information. Divert effort from current activity to goat surveys. More aerial surveys of goats may yield more population data.

Larger hunting districts could be divided into smaller districts to obtain better hunter distribution. Maps showing goat distribution could be sent to permit holders to encourage better dispersal of hunters.

Discourage land managing personnel from building roads to the edge of goat habitat. Encourage closure of roads which closely approach goat habitat.

Investigate area and recommend transplanting where suitable areas are defined.

## MOUNTAIN GOAT STRATEGIC PLAN - REGION 3

SUPPLY AND DEMAND

Mountain goat occur on 880 sq. miles, or 5 percent of the land area in Region 3; this is 17 percent of the statewide mountain goat distribution area. The mountain goat-habitat land in Region 3 is 99 percent public ownership (mainly U.S.F.S.) and 1 percent private. All of the goat harvest comes from public land.

Goat populations are stable in the majority of mountain goat hunting districts, declining or unknown on others.

An average of 161 goat hunters were field in Region 3 during 1971 to 1974; this represented 26 percent of the total mountain goat hunters statewide. An average of 81 were harvested annually from 1971 to 1974, comprising 29 percent of the statewide goat harvest. Harvests ranged from 72 in 1972 to 94 in 1974.

Applications for mountain goat permits in Region 3 increased from 1,064 in 1973 to 1,275 in 1976. The ratio of applications per permit in Region 3 has steadily increased from 5.8:1 in 1973 to 10.2:1 in 1976.

Future objectives are to increase goat harvests and recreation; attainment will depend upon success in solving problems listed below.

FAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOATS

	Mountain Goat Harvest	Licenses Afield	Hunting Success	Goat Hunting Recreation Days	Effort (Days Hunted Per Goat Harvested)
Aver.					
1971-74	81	161	51%	740	8
1975	61	124	49%	620	10
1976	74	115	64%	575	8
1980	100	200	50%	800	8
1985	100	200	50%	800	8
1990	100	200	50%	800	8

6-YEAR OBJECTIVE (1977-82):	To provide 800 days of mountain goat hunting annually at a hunting success rate of 50 percent and an average hunting effort of 8 days/goat harvested by 1980.
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PROBLEMS

Specific data on populations and habitat relationships are lacking. Opportunities for securing sufficient data are limited with current assignments of manpower.

The severity of terrain makes it difficult to achieve proper distribution of goat hunters throughout goat habitat.

STRATEGIES

More field effort needs to be assigned or re-directed to accomplish goat population surveys necessary to attain 1980 objectives. Intensive studies of specific herd populations and habitats are also recommended.

Allocating harvest permits for more specific areas will help distribute hunters.



SUPPLY AND DEMAND

Mountain goat occur on 666 sq. miles, or 3 percent of the land area in Region 4; this is 13 percent of the statewide mountain goat distribution area. The mountain goat-inhabited land in Region 4 is 94 percent public ownership (mainly U.S.F.S.) and 6 percent private. Over 90 percent of the mountain goat harvest comes from public land.

Mountain goat populations are stable to decreasing where known and undetermined in some goat hunting districts. Some additional areas are expected to provide goat hunting before 1980.

An average of 75 goat hunters were afield in Region 4 from 1971 to 1974; this represented 12 percent of the total mountain goat hunters afield statewide. An average of 33 mountain goats were harvested annually from 1971 to 1974, comprising 12 percent of the statewide goat harvest. The number of permits issued was reduced and the harvest declined from 46 (1971) to 15 (1975).

Applications for mountain goat permits in Region 4 declined from 790 in 1973 to 652 in 1974 and increased to 713 in 1976. The ratio of applications per permit in Region 4 has increased from 12:1 in 1973 to 23:1 in 1976.

Future objectives are to increase goat harvests and recreation to levels of 1971-72. Attainment will depend upon success of new areas and in solving problems listed below.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOAT

	Mountain Goat Harvest	Licenses Afield	Hunting Success	Goat Hunting Recreation Days	Effort (Days Hunted Per Goat Harvested)
Aver. 1971-74	33	75	43%	264	8
1975	15	24	63%	96	6
1976	17	29	59%	145	9
1980	40	100	40%	300	8
1985	40	100	40%	300	8
1990	40	100	40%	300	8

6-YEAR OBJECTIVE(1977-82): To provide 300 days of mountain goat hunting annually at a hunting success rate of 40 percent and an average hunting effort of 8 days/goat harvested by 1980.

PROBLEMS

Need more basic biology information on all herds.

Hunter harvest tends to be concentrated in more accessible areas.

Maintaining and/or enhancing goat habitat.

STRATEGIES

Change work priorities or assign additional personnel to initiate field studies on each of the known herds present or that will be established in the coming years.

Create smaller hunting districts to get more even harvest using all known data on distribution, production and survival. Allocate hunting permits to more specific areas to cause a wider distribution of hunters.

Work with federal agencies to improve any situations where competition with livestock is detrimental. Also determine if controlled burning or other methods will be beneficial to goats and work with federal agencies to accomplish habitat improvements.

## MOUNTAIN GOAT STRATEGIC PLAN - REGION 5

SUPPLY AND DEMAND

Mountain goats occur on 310 sq. miles, or 2 percent of the land area in Region 5; this is 6 percent of the statewide mountain goat distribution area. The mountain goat-inhabited land in Region 5 is 100 percent public ownership (mainly U.S.F.S.). All of the mountain goat harvest comes from public land.

Mountain goat populations are increasing in Region 5.

An average of 46 hunters were afield in Region 5 from 1971 to 1974; this represented 8 percent of the total mountain goat hunters afield statewide. An average of 29 goats were harvested annually from 1971 to 1974, comprising 10 percent of the statewide mountain goat harvest. Harvests ranged from 18 in 1971 to 47 in 1974.

Applications for mountain goat permits in Region 5 increased from 351 in 1973 to 602 in 1976. The ratio of applications per permit in Region 5 has ranged between 6 and 7:1 from 1973 to 1976.

Future objectives are to increase goat harvests and recreation opportunity; attainment will depend greatly upon success in improving basic information on goat populations, productivity and rates of harvest that can be sustained.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN GOAT

	Mountain Goat Harvest	Licensees Afield	Hunting Success	Goat Hunting Recreation Days	Effort (Days Hunted Per Goat Harvested)
Aver.					
1971-74	29	46	63%	232	8
1975	36	78	46%	390	11
1976	43	77	56%	385	9
1980	50	75	65%	400	8
1985	50	75	65%	400	8
1990	50	75	65%	400	8

6-YEAR OBJECTIVE (1977-82): To provide 400 days of mountain goat hunting annually at a hunting success rate of 65 percent and an average hunting effort of 8 days/goat harvested by 1980.

PROBLEMS

More intensive population information is needed on specific herds if full utilization potential of goat populations is to be attained.

STRATEGIES

More field effort needs to be assigned or re-directed to improve overall goat population survey information. Intensive study of specific populations is also recommended to ascertain relationship of goat productivity and harvest rates.

Supply and Demand

Mountain lions (cougars) have been reported in all seven regions, though they are uncommon in eastern Montana. Most notable, populations occur in rugged, mountainous areas of western Montana.

Little data has been available on specific distribution areas, population status, or trends. Increased efforts to improve the data base for management are underway.

The lion was declared a game animal in 1971. Estimated annual harvests ranged from 51 in 1971-72 to 91 in 1974-75. A lion hunting license is required to hunt and a trophy license is necessary after killing.

In the 1976 season nearly 600 hunters pursued lions for sport; demand for licenses is currently increasing.

The majority of the lion harvest in the past 3 years has come from Regions 1 (47%), 2 (39%); the remainder of harvest has been in Regions 4 (8%), 3 (3%) and 5 (3%).

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR MOUNTAIN LION

	Hunter Harvest	Licenses Sold	Hunting Success (Lion/License)	Estimated <sup>1</sup> Lion Hunting Recreation Days	Effort (Days Hunted Per Lion Harvested)
1971-72 <sup>2</sup>	51	450	12%	1,350	26
1972-73 <sup>2</sup>	54	581	9%	1,750	32
1973-74	72	314	23%	940	13
1974-75	91	351	26%	1,050	12
1975-76	76	406	19%	1,220	16
1976-77	70	587	12%	1,760	25
1980-81	80	500	16%	1,500	19
1985-86	80	500	16%	1,500	19
1990-91	80	500	16%	1,500	19

<sup>1</sup>Assuming an average of 3 days effort for each licensed hunter

<sup>2</sup>No fee required for license

STATEWIDE GOAL: To protect and perpetuate mountain lions and to maintain populations to provide for all types of sport hunting and non-hunting uses.

6-YEAR OBJECTIVES:  
(1977-82)  
To provide 1,500 days of mountain lion hunting annually at a hunting success rate of 1 lion harvested per 6 licensees and an average effort of 19 days per lion harvested by 1980. To develop improved techniques for estimating lion population trends and evaluating effects of sport hunting.

PROBLEMS

Improved information on lion distribution, density, population trends and effects of sport hunting is needed for future management.

Local problems exist with nonresidents pursuing lions while bobcat hunting.

STRATEGIES

Develop census methods to indicate population trends in various areas of the state. Assemble and utilize available information on prey species trends and develop census methods where necessary. Continue to monitor the distribution and intensity of lion hunting pressure and the harvest.

Change of bobcat classification to a turbrear will provide improved capability to discourage this.

(continued)

## MOUNTAIN LION STRATEGIC PLAN STATEWIDE (continued)

PROBLEMS

There is a need to maintain and/or upgrade the quality of lion hunting and to encourage greater selectivity of harvested lions.

Extensive expansion of forest road systems are reducing the security of lion habitat.

STRATEGIES

Disseminate information to lion hunters through special meetings, contacts with licensees, and questionnaire results. Emphasize the sport of the chase and merits of harvesting only selected lions.

Seek improved cooperation to consider lion habitat needs in forest land planning and management; close roads or curtail use of motorized vehicles in problem areas.

## BLACK BEAR STRATEGIC PLAN - STATEWIDE

87

SUPPLY AND DEMAND

Black bear are widely distributed from the timbered portions of western Montana into foothill areas east of the Divide including isolated mountain ranges such as the Highwoods, Judiths, Snowies, Pryors and Bighorns. They occur on at least 34,000 sq. miles or 29 percent of the state (excluding National Parks and Indian reservations); the majority of their distribution area is public land.

Little data is available on current black bear population trends. Intensive studies of black bears conducted in the Whitefish range of northwestern Montana during 1959-66 have provided basic information for bear management.

Spring through fall black bear hunting has been allowed since 1959. Estimated black bear harvests from 1959-70 varied between 1,100 and 2,100 with an annual average of 1,600. Approximately 50 percent of the harvest is taken during the fall big game season.

Black bear annual harvests have averaged 1,250 for the 1971-75 period. In 1975, Region 1 had the greatest portion (61%) of the bear harvest, followed by Region 2 (21%), Region 3 (10%), Region 4 (5%), and Region 5 (3%).

Since 1971 a separate license has been required to hunt black bear. The demand for black bear licenses has steadily been rising since 1971 and may reach or exceed 10,000 by early 1980's. The statewide harvestable supply of black bears presently exceeds current and anticipated sport hunting demand. A regional summary of black bear distribution and hunting information is presented on the following page.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR BLACK BEARS

	Estimated Harvest	Licenses Sold	Estimated Licensees Afield	Hunting Success	Hunting Days	Effort (Days Hunted Per Bear Harvested)
1971	1,185	2,884	--	23%	36,158	31
1972	928	4,794	3,382	27%	25,836	28
1973	1,347	6,976	5,019	27%	41,245	31
1974	1,527	7,515	4,905	26%	50,235	33
1975	1,251	8,060	6,201	20%	54,320	43
1976	1,637	--	10,187*	16%	89,458	54
1980	1,700	8,000	7,600	22%	58,600	35
1985	1,850	10,000	4,400	22%	65,000	35
1990	2,000	11,000	8,200	22%	70,000	35

\*Part of increase due to change in nonresident big game license that now includes a black bear tag.

STATEWIDE GOAL:

To protect and perpetuate black bear and their habitat and to maintain populations and manage for an increase sport hunting demand.

6-YEAR OBJECTIVE (1977-82):

To provide 59,000 days of black bear hunting annually at a hunting success rate of 22 percent and an average hunting effort of 35 days/black bear harvested by 1980.

PROBLEMS

Hunting demand for black bears has been relatively low in Regions 2, 3, 4 and 5. The species could provide considerably more sport hunting and appreciative use opportunity in many areas.

STRATEGIES

Inform the public of the opportunities for hunting and/or viewing black bears and stress their availability on extensive areas of public land during both spring and fall. Provide information on hunting methods, areas and best time periods for hunting and/or observing bears.

(continued)

## BLACK BEAR STRATEGIC PLAN (continued)

PROBLEMS

Data population trends, bear densities, and effects of land-use changes are lacking throughout each region. Rapid, reliable, and economical censusing techniques are needed. Detailed harvest information about location, date, sex, and age is lacking.

The merits of maintaining the summer hunting season is questionable in some regions.

Nuisance, damage, and black bear control efforts are expected to continue at some level.

The interrelationship between grizzly and black bear is not well known. Data are also needed on black bear relationships to other big game.

STRATEGIES

Coordinated and cooperative efforts by Department and other agency personnel for developing census techniques and obtaining improved population and habitat use data. Obtain additional qualitative data on hunter harvest by special questionnaire and field checks.

Determine the history, location, reasons, and number of black bear mortalities for damage, nuisance, and control reasons. Consider on a region-by-region basis whether limiting general open hunting to spring and fall periods is desirable.

Determine the cause, extent, and frequency of nuisance and damage actions, and develop management plans to minimize the need for damage control. Discourage subdivisions in bear habitat and educate people on avoiding conflicts with bears. Strive to attain a sustainable level of sport hunting that will minimize the need for direct bear control.

Intensive field studies involving tagging, observing and radio telemetry would be required. Determine the relationship to other big game species in high density black bear habitats through field studies.

SUMMARY OF BLACK BEAR DISTRIBUTION AND HUNTING DATA BY REGIONS

Fish & Game Region	Estimated Distribution Area	% Of Region Black Bear Occur On	Black Bear Licensees Afield			Estimated Annual Harvests			Hunting Recreation			Indicators of Hunting Success and Effort					
			Past			Past			Hunting Days			Percent			Days Hunted		
			(Aver.)			(Aver.)			(Aver.)			Hunting Success			Per Bear		
			1971-74	1975	1980	1971-74	1975	1980	1971-74	1975	1980	1971-74	1975	1980	1971-74	1975	1980
1	10,180 sq.mi.	91 %	2,400	3,268	3,400	700	761	850	19,300	28,604	29,800	29%	23%	25%	28.0	37.6	35.0
2	7,000 sq.mi.	68 %	1,200	1,507	1,800	300	263	450	8,900	12,544	13,500	26%	17%	25%	28.5	47.7	30.0
3	9,600 sq.mi.	53 %	845	980	1,300	140	128	200	5,600	7,112	8,400	16%	13%	15%	40.7	55.6	42.0
4	6,650 sq.mi.	28 %	510	599	700	72	68	100	3,100	3,985	4,400	14%	11%	14%	43.7	58.6	44.0
5	600 sq.mi.	4 %	252	339	400	29	31	50	1,400	2,083	2,500	12%	9%	12%	49.2	67.2	50.0
State Total	34,030 sq.mi.	26 %	5,207	6,201	7,600	1,241	1,251	1,650	38,300	54,320	58,600	24%	20%	22%	31.0	43.4	35.0

Supply and Demand

Grizzly bears are present in some of the more rugged, mountainous areas in 5 of 7 Fish and Game Regions. They occur at some time of the year on approximately 8,850 square miles of Montana (excluding National Parks). Grizzly distribution may slightly exceed the recorded distribution of 30 years ago. Viable populations exist in northwestern and southcentral Montana.

Hunting is currently allowed in Regions 1, 2 and 4; Region 3 has been closed since 1974. A \$25 license is required to hunt and a \$25 trophy license is required when a grizzly is harvested. Many bear hunters are also pursuing other big game; grizzly hunting success is low — 1 to 2 percent.

Since 1975, the grizzly has been classified "threatened" under the Endangered Species Act of 1973. This has resulted in limiting the statewide annual harvest to 25 (including known man-caused mortalities in addition to sport hunting) and the closure of grizzly hunting in southcentral Montana. Unlimited licenses are issued and a strict monitoring of the harvest results in closing the season on 48 hours notice when the annual quota of 25 is approached. Only about 50 percent of the annual known mortality is attributed to sport hunting; other reported mortalities are caused by trains, cars, illegal hunting, kills on Indian Reservations and in Glacier National Park, U.S. Fish & Wildlife Service control, and other "problem" bears. Viable grizzly populations require harvests which can best be done by hunting.

Grizzly bear hunting harvests have varied annually since 1967 from 11 to 33. The northwest areas have provided most of the harvest.

Considerable controversy exists as to the status of grizzly bears and the role of hunting in their management. Carefully controlled hunting is an important tool to manage grizzly populations. Hunting tends to maintain or increase the bear's wariness of humans and decreases the incidence of "unfortunate" grizzly-human encounters.

Sport hunting should be continued to harvest part of the population which would otherwise likely be removed illegally or in response to depredation complaints. Maintaining opportunity for grizzly hunting and observation adds to the diversity of wildlife recreation opportunities available in Montana — and is the only grizzly hunting now available in the 48 contiguous states.

The hunting demand is expected to continue in excess of harvestable supply. The demand for appreciative use of the grizzly, with improved degree of human safety, is expected to remain high.

PAST, CURRENT AND PROPOSED GRIZZLY BEAR MANAGEMENT PARAMETERS

	Estimated Harvest	Number Licenses Sold	Hunters Afield	Hunting <sup>1</sup> Success	Hunting Days	Per Bear Harvested
1971	22	968	774	2.3%	5,400	246
1972	14	948	758	1.5%	5,300	379
1973	15	810	648	1.9%	4,500	302
1974	18	918	734	2.0%	5,100	285
1975	13	986	789	1.3%	5,500	424
1976	11	513	400	2.1%	2,800	254
1980	16 <sup>2</sup>	1,000	800 <sup>3</sup>	2.0%	5,600 <sup>4</sup>	370
1986	16	1,000	800	2.0%	5,600	370
1990	15	1,000	800	2.0%	5,600	370

<sup>1</sup>Number licenses sold ÷ hunter harvest

<sup>2</sup>hunting harvest

<sup>3</sup>estimated 80% of licensees actually hunt

<sup>4</sup>estimated 7 days per hunter

## STATEWIDE GOAL:

To protect and perpetuate grizzlies and their natural habitat and maintain them in sufficient numbers to provide for hunting and all nonhunting uses. To minimize any negative effects of grizzlies on human health and private property.

## 6-YEAR OBJECTIVE:

To maintain grizzly distribution in all occupied habitat and sustain their populations within the safety tolerances for human health and private property. To provide sufficient harvestable grizzlies annually from all available, huntable populations to provide 5,000-6,000 days of grizzly hunting opportunity at a hunter success rate of 1-3 percent by 1980.

(continued)

## GRIZZLY BEAR STATEWIDE (continued)

PROBLEMS

The Federal law (Endangered Species Act) demanded a classification of "critical" grizzly habitat by October 1, 1976. The U.S. Fish & Wildlife Service is not qualified nor able at this time to define the habitat.

"Critical habitat" as used in the Endangered Species Act has too many interpretations by too many people and organizations. Public distrust for government agencies is a result. Federal hearings held in December 1976 on critical grizzly habitat indicate the public is opposed to the classification and boundaries indicated by the U.S. Fish & Wildlife Service.

The U.S. Fish & Wildlife Service pushed the grizzly issue too far and too fast. Unfortunately, the result has worsened the grizzly image in the minds of many. The welfare of the grizzly vaulted to a national issue in 1968 and became a part of the high level Washington political structure by the coalition of eastern conservation organizations and emotionalism to persuade the Department of Interior and U.S. Fish & Wildlife Service to classify the grizzly under the Endangered Species Act of 1973. The Fish & Wildlife Service has ignored the State Director and International Fish & Game Commissioners' requests to answer and spell out certain definitions in the Endangered Species Act and the Federal Rule -- about "substantial data," "foreseeable future," etc.

Incompatibility of grizzlies and human developments. Identifying grizzly habitat and preventing detrimental modification through unwise land uses and human activities.

Continuation of livestock grazing leases where grizzlies are common on Federal lands and proliferation of subdivisions and inappropriate farming operations in key grizzly areas.

STRATEGIES

Continue the studies in progress that are intended to determine these features.

Improve public relations activities to adequately spell out the meaning of the word "critical" relative to the grizzly and its habitat; or, remove the grizzly from the Endangered Species Act and achieve a sincere program for a more realistic position for the grizzly. The issue could be delayed by having the U.S. Fish & Wildlife Service required to prepare an environmental impact statement and to address all biological, social, and economic impacts of the grizzly.

A sincere effort is needed by the U.S. Fish & Wildlife Service decision-makers to learn about grizzly status and problems and the state's responsibilities, efforts, and studies is of paramount importance. Continue with efforts to get meaningful answers.

Increase habitat studies so that habitat can be properly recognized over extensive areas and all possible steps to protect it from degradation implemented. Discourage all types of development in areas determined to be important grizzly habitat. Some logging may not be detrimental to grizzly habitat, but each site should be carefully planned and evaluated. Roads are detrimental by giving increased numbers of people easy access to grizzly habitat. Therefore, roads should be permanently closed after timber harvest is completed.

Launch a determined effort in cooperation with the Forest Service and Bureau of Land Management to purchase and trade for seasonal bear ranges, areas where problems are recurrent, and other areas essential to the grizzly. Increase restrictions on those sites already in government control where problems continue.

(continued)



PROBLEMS

Local garbage dumps, apiaries, bone yards, abattoirs, fish farms and livestock carrion left in grizzly habitat continue to cause man/grizzly conflicts.

Too high human use levels in portions of important grizzly ranges.

Preliminary Montana studies indicate that grizzlies are not threatened in the northwest and southcentral populations.

About 50 percent of known annual mortality is due to nonhunting causes.

Montana has no authority on Indian Reservations and grizzlies are killed on these lands. The Indian kills, which the State cannot administer, are included in the annual 25 quota. Grizzly mortality on Indian lands and in National Parks should not be included in the Montana quota.

Improved information on grizzly population densities, reproduction and mortality, age structures, and distribution data are needed.

STRATEGIES

Identify problem areas, evaluate the nature and degree of problem, and take corrective action under State and Federal regulations. Encourage the prompt disposal of dead livestock in bear areas.

Work with Forest Service and Bureau of Land Management to monitor the uses (trail, logging, livestock grazing, etc.) in key grizzly ranges. Devise ways to keep the cumulative total use within tolerable limits.

Continue studies; begin new studies in additional areas. Request U.S. Fish & Wildlife Service to reconsider the data provided by the Fund for Animals for the listing, and to consider new data as presented by the Department. Investigate suitability and means to remove them from the Endangered Species Act whenever adequate data are on hand.

Strive to reduce bear/people conflicts and attempt to reduce illegal kills. Increasing conflicts are a costly affair that the State or private individuals have to assume because of the Federal law. Provide the public and land managers with guidelines on reducing bear/people conflicts.

State personnel are working with Indian councils for assistance with studies and management. Federal government agencies have been informed about the need for their involvement, but have ignored the issue. Petition the U.S. Fish & Wildlife Service to immediately address and reconsider the State's request for clarification.

Intensive grizzly studies were initiated during 1975 in the Border Grizzly and Interagency grizzly populations; these studies must be continued for 6 to 10 years to provide meaningful information. Maintain and improve current programs to obtain accurate annual grizzly mortality data.



## Small Game Strategic Plan

This category of the Wildlife Program relates to 9 upland game bird species, numerous waterfowl species (ducks, geese and swans), other migratory waterfowl and game birds. Also included are those native mammals legally designated as fur bearers or predators, with mention of others harvested for fur.

During the early 1960's (when pheasants were abundant) over 86,000 persons were licensed to hunt birds. Upland bird and waterfowl hunting currently provides more than 500,000 days of hunting recreation to over nearly 50,000 bird hunters afield.

Over 1,000 persons are engaged in trapping furbearers each year.

In addition, the small game resource provides an undetermined amount of nonhunting recreation through wildlife observation and photography to many persons, including hunters and non-hunters. Appreciative uses of small game species are available year around.

Future demand for upland bird and waterfowl hunting is expected to increase as is the nonconsumptive use of these species. This category of the wildlife program is expected to assume a greater role in the wildlife program of the future.

Hunting of coyotes and bobcats is currently increasing at a rapid rate due to high prices and high interest by livestock growers to control predator damages. The number of persons active in "varmint" hunting is unknown, but this growing sport adds several months of sport hunting opportunity.

Small game species are typically relatively short-lived with high potential to reproduce their members. The overall harvestable supply of these species exceeds current and anticipated hunting demands; however, the availability of the supply is strongly dependent upon access to private land in many cases.

STATEWIDE GOAL:	To maintain an available supply of small game to meet demand for all types of small game oriented recreation while insuring the perpetuation of all small game species and their ecosystems.
6-YEAR OBJECTIVE: (1977-82)	To provide sufficient quantities of harvestable, available upland game birds, furbearers and waterfowl, and their habitats to provide annually an average of 750,000 man days of hunting and trapping recreation within stated management parameters; to seek solutions to open all pertinent public lands which exclude public access for small game oriented recreation and to strive to maintain reasonable degrees of public access to at least 80 percent of those private lands with small game; and to increase the Commission owned and controlled small game habitat by 1,000 acres per biennium, to assess the demand for other recreational uses of all small game species.

PROBLEMS

Land use practices including heavy grazing, marsh drainage, expanding cultivation and "clean-farming", intensive forestry, spraying of herbicides and insecticides, strip mining and expansion of subdivisions are reducing the quantity and quality of small game habitat over extensive areas.

STRATEGIES

Identify important habitat areas and seek improved consideration for them in all land use planning. Seek cooperation to improve grazing and timber management practices on public lands for the benefit of wildlife. Provide counsel to private land managers to encourage consideration for wildlife habitat. Seek means to provide economic incentives to maintain and improve habitat on private lands and discourage and bring public attention to uses of public money that harm wildlife habitat on public and private lands. Acquire or lease key areas for small game habitat enhancement.

(continued)

PROBLEMS

Decline of access to private and public lands for public hunting and other wildlife recreation.

Lack of biological information to determine and/or monitor the status of various small game species and to ascertain the impacts of land use changes and increasing consumptive uses.

Large segments of the public are uninformed or unappreciative of the needs of small game species, the rationale for hunting and trapping, the ecological role of predators, and the values and human benefits of overall wildlife resources.

STRATEGIES

Assist private landowners with hunter control and law enforcement. Implement means to disperse small game hunters in time and space to minimize heavy concentrations of hunters in local areas. Encourage and/or assist public managers in marking, mapping and improving access to public lands with small game resources. Strive for elimination of the inconsiderate behavior and acts of the minority of hunters and other recreationists that alienate landowners, degrade the sport, and/or threaten public safety. Recognize the need and support methods to make public hunting an economic benefit to private landowners instead of an undesirable and costly activity.

Upgrade extensive field efforts to determine the status of small game populations and monitor the effects of land uses and increasing rates of harvest. Implement intensive studies to determine the life requirements of selected small game species and to identify the cause-and-effect relationships of fluctuating small game populations.

Continue educational efforts with youth and adult groups. Explain the basis for annual consumptive use of renewable small game populations. Seek public understanding and support for broader means to fund wildlife programs that are providing benefits to all residents of and visitors to the state. Clarify the Department's position and policies regarding predators and predator management.

(Specific problems and strategies are discussed by small game species groups and Fish and Game Regions on subsequent pages.)

SUPPLY AND DEMAND

Three species of grouse—blue, ruffed, and spruce (Franklin)—are native to Montana's mountainous and forested areas. Blue grouse occur over the most extensive area, about 34,000 sq. miles, ruffed are present on about 30,700 sq. miles, and spruce grouse occur on some 19,700 sq. miles. The total area on which some species of mountain grouse occurs is approximately 38,000 sq. miles, or about 29 percent of the state (excluding National Parks and Indian Reservations). The majority of this area is public forest land.

Hunting seasons have been in effect since 1960 that allow opportunity to hunt mountain grouse from early September to late November. From 1960 to 1969, the average annual statewide harvest of mountain grouse has been 140,000, varying between 99,000 and 182,000. From 1970 to 1975, the average annual harvest has been 116,000, varying from 82,000 to 160,000. The harvest has been comprised of 39 percent blue grouse, 39 percent ruffed grouse and 22 percent spruce grouse. Mountain grouse species make up about 33 percent of the total upland game bird harvest in the state.

Regional information on mountain grouse harvests and hunting is listed in Table 1. (Only statewide summaries were updated to 1976.)

The statewide supply of harvestable mountain grouse exceeds current and anticipated hunting demands.

PAST, CURRENT AND PROPOSED STATEWIDE MANAGEMENT PARAMETERS FOR MOUNTAIN GROUSE

Aver.	Estimated Annual Harvest				Hunting Days	Days Hunted Per Grouse Baggged	No. Bird Hunters Afield in Regions Hunted
	Blue	Ruffed	Spruce	ALL			
1970-74	45,000	45,000	25,000	115,000	-	-	31,900
1975	49,200	47,400	23,900	120,300	123,000	1.0	32,700
1976	51,300	38,000	18,600	107,900	107,000	1.0	36,900
1980*	59,500	59,500	30,000	149,000	149,000	1.0	40,200
1985*	64,000	64,000	33,000	161,000	161,000	1.0	43,600
1990*	70,000	70,000	36,000	175,000	175,000	1.0	46,800

\*Dependent upon natural fluctuations in annual grouse populations, weather, and expected number of hunters, etc.

## STATEWIDE GOAL:

To protect and perpetuate mountain grouse species and their habitat and to maintain the available, harvestable supply of mountain grouse and increase demands for hunting and nonconsumptive uses.

6-YEAR OBJECTIVE:  
(1977-82)

To provide 149,000 days of mountain grouse hunting at a rate of hunter effort of 1.0 days per grouse by 1980.

PROBLEMS

Land-use practices such as heavy grazing and intensive logging and reforestation deteriorate grouse habitat. Use of insecticides and herbicides remain a potential threat to forest grouse welfare.

STRATEGIES

Identify important grouse habitats and seek consideration for them in all land-use planning. Urge public land managers to adjust heavy grazing on stream bottoms and foothill grasslands to leave more cover, particularly during the early summer brood season. Seek cooperation in planning timber sales: to leave thickets of tree reproduction unthinned in grouse breeding areas; to avoid large clearcuts; and to promote seeding of road beds, log landings, and other soil disturbances, with palatable grass/legume mixtures. Provide input to land-use planning and monitor land management practices that are altering grouse habitats. Oppose use of herbicides that deteriorate grouse brood habitat. Oppose use of insecticides that are a hazard to grouse populations. Cooperate with public and private land managers to minimize wildlife/pesticide problems.

(continued)

PROBLEMS

Bird hunting pressure is concentrated in the early part of the mountain grouse hunting season. As the effort per bird bagged increases somewhat after opening day, many hunters ignore mid and late season hunting opportunities.

Early September seasons provide additional public hunting opportunity but sometimes pose a fire danger and/or landowner conflict in local areas.

Lack of access through private land to the public forest in many locations reduces hunting opportunity and concentrates hunters in other areas.

Reliable and economical means of monitoring mountain grouse population trends over extensive areas are lacking.

The status of mountain grouse species in some of the isolated mountain ranges of central Montana is not well known.

STRATEGIES

Promote the aesthetic features of bird hunting that are available throughout the hunting season; provide hunters with information on finding birds on public lands and the advantages of hunting after the early concentration of hunters are absent. Maintain liberal bag limits and long seasons for those who want to take advantage of them. Improve public understanding about the role of hunting in relation to bird population fluctuations.

Schedule opening of season on a date which usually follows late summer storms to reduce fire danger. Have alternative season dates ready to effectively implement if real fire danger conditions are prolonged. Urge hunters to respect private landowner's property and point of view. Assist public land managers in informing the public where grouse hunting opportunities are available to public access.

Encourage and provide assistance to public land managers to improve access to public lands. Seek cooperation of private landowners and take steps to minimize over-concentrations of hunters, mis-use of vehicles, and other negative effects of hunting.

Evaluate the variety of current field efforts being used and available research findings. Continue to implement only those methods that provide meaningful information and seek ways to improve their effectiveness with available work force.

Implement field surveys to determine the presence of and relative status of blue and ruffed grouse. Where appropriate, include additional areas in hunting regulations. Evaluate feasibility of transplanting wild stock of species not present in isolated mountain ranges.

Table 1. SUMMARY OF PAST, CURRENT AND PROPOSED REGIONAL MANAGEMENT PARAMETERS FOR MOUNTAIN GROUSE

Fish & Game Region	ESTIMATED TOTAL BIPO HUNTERS					ESTIMATED ANNUAL HARVEST					HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past (Aver.)	Current	Projected			Past <sup>1</sup> (Aver.)	Current <sup>1</sup> (% Total)	Proposed <sup>1</sup>			Hunting Days				Days Hunted/ Mtn. Grouse		Mtn. Grouse Bagged/ Bird Hunter	
	1970-74	1975	1980	1985	1990	1970-74	1975	1980	1985	1990	(Current) 1975	(Proposed)			1975	1980	1975	1980
												1980	1985	1990				
1	6,500	7,100	8,000	8,600	9,400	38,000	47,062 (42%)	48,000	51,600	56,400	46,072	48,000	51,600	56,400	1.0	1.0	6.6	6.0
2	5,500	5,900	7,000	7,500	8,200	35,000	28,328 (25%)	42,000	45,000	49,200	31,985	46,200	49,500	54,100	1.1	1.1	4.8	6.0
3	4,800	5,700	6,500	7,300	7,700	16,000	20,395 (18%)	23,000	25,500	27,000	18,611	21,000	23,000	24,300	.9	.9	3.6	3.5
4	10,800	9,800	13,000	13,800	14,600	13,000	13,418 (12%)	18,000	19,300	20,400	13,138	18,000	19,300	20,400	1.0	1.0	1.4	1.4
5	4,300	4,200	5,600	6,200	6,700	2,500	3,224 (3%)	4,500	5,000	5,400	2,532	3,600	4,000	4,300	.8	.8	.8	.8
6	0	—	100	150	150	--	--	200	300	300	--	200	300	300	--	1.0	--	2.0
7	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
STATE TOTAL	31,900	32,700	40,200	43,500	46,800	104,500	112,400	135,700	146,700	158,700	112,338	137,000	147,700	159,800	1.0	1.0		
						115,100 <sup>2</sup>	120,300 <sup>2</sup>	149,300 <sup>2</sup>	161,400 <sup>2</sup>	174,600 <sup>2</sup>	122,824	150,700	162,500	175,800	1.0	1.0	3.7	3.8

<sup>1</sup>Approximately 40% blue, 40% ruffed, and 20% spruce grouse; proposed annual harvest by 1980 based on projected increase of hunters with approximate average hunting success and effort of 1970-76. Future harvest objectives must be considered "target" numbers due to the many factors that influence attainment of a harvest annually.

<sup>2</sup>State total exceeds sum of regions as location of a portion of the harvest is unknown.

## PRAIRIE GROUSE STRATEGIC PLAN - STATEWIDE

SUPPLY AND DEMAND

Two species of prairie-dwelling grouse, sharp-tailed and sage, are native to Montana. In 1975, these two species provided 36 percent of the state upland bird harvest and over 85,000 days of hunter recreation. Both are of special interest to bird watchers and wildlife photographers.

The Great Plains Sharp-tail is most abundant in eastern and central Montana where prairie and foothill grasslands are in reasonably good condition. Only marginal sharp-tail populations exist where grasslands are heavily grazed or extensively cultivated. Sharptails occur on over 83,000 sq. miles or 64 percent of the state (excluding National Parks and Indian reservations). About 57 percent of their distribution area is currently rated as Class I or II habitat with the *capability* for moderate hunting depending on annual population fluctuations. The remainder (43%) is Class III which is distinctly marginal habitat and provides fair hunting only in local areas. A major portion of sharp-tail distribution area is privately-controlled land except where large blocks of public rangeland (mostly BLM) exist.

Since 1970, statewide harvests of sharp-tails have varied from 73,000 to 89,700; comprising an average of 23 percent of the statewide annual upland bird harvest.

Regional information on sharp-tail harvests and hunting is listed in Table 2. The statewide supply of harvestable sharp-tails exceeds current and anticipated hunting demands if a reasonable degree of access to private lands is maintained.

Remnant populations of the Columbian Sharp-tail subspecies exist on an estimated 21 sq. miles of valley grasslands in northwest Montana. This subspecies is in a precarious status due to loss of its native habitat; sharp-tail hunting is not permitted in western Montana (Regions 1 and 2). Additional steps may be necessary to protect the Columbian subspecies.

The Sage Grouse, also commonly known as sage hens or sage chickens, are the largest-sized grouse in North America and occur on over 50,000 sq. miles, or 38 percent of Montana (excluding National Parks and Indian reservations). Sage grouse are strongly dependent upon sagebrush and related plants in sagebrush-grassland ranges. They have thin-walled gizzards and depend upon the leafy material of sagebrush to survive the harsh, prairie winters. About 50 percent of their distribution area is currently rated as Class I or II habitat and 50 percent Class III (marginal). A major portion of sage grouse-inhabited area is privately controlled, except where large blocks of public rangeland (BLM and USFS) exist.

Since 1970, statewide harvests of sage grouse have ranged from 36,900 to 46,000; comprising an average of 12 percent of the statewide annual upland bird harvest.

Regional information on sage grouse harvests and hunting is listed in Table 3. (Only statewide summaries are updated to 1976.)

The statewide supply of harvestable sage grouse exceeds current and anticipated hunting demands if a reasonable degree of access to private lands is maintained.

PAST, CURRENT AND PROPOSED STATEWIDE MANAGEMENT PARAMETERS FOR PRAIRIE GROUSE

	<u>Annual Harvest</u>		<u>Hunting Days</u>		<u>Days Hunted/ Bird Bagged</u>	<u>Total Bird Hunters Afield</u>
	<u>(Sharptail)(Sage)</u>		<u>(Sharptail)(Sage)</u>		<u>(Sharptail)(Sage)</u>	<u>In Regions Hunted</u>
Aver.						
1970-74	80,000	41,000	-	-	-	29,000
1975	87,700	45,000	52,000	33,000	.6	31,600
1976	137,300	50,800	72,700	38,100	.5	39,000
1980*	118,000	57,000	71,000	40,000	.6	41,100
1985*	131,000	63,000	78,600	45,000	.6	45,300
1990*	143,000	69,000	85,800	48,000	.6	49,000

\*Dependent upon natural fluctuations in grouse populations, fall weather, expected number of hunters, etc.

## STATEWIDE GOAL:

To protect and perpetuate prairie grouse and their habitat and to maintain the available, harvestable supply of prairie grouse and increase demands for hunting and nonconsumptive uses.

6-YEAR OBJECTIVE:  
(1977-82)

To provide 111,000 days of prairie grouse hunting at a rate of .6 days per sharp-tail and .7 days per sage grouse of hunter effort by 1980.



### PROBLEMS

Although considerable knowledge exists on the biology and life histories of prairie grouse, regional management efforts have been minimal as the result of supply exceeding demand. If the reverse occurs, those responsible for the birds' welfare will be lacking quantitative information necessary for future management circumstances.

The available, huntable supply of prairie grouse is consistently under-utilized in some regions, particularly eastern Montana.

Prairie grouse seasons are established on a county line basis with no apparent rationale other than keeping the number and kind of seasons to a minimum. Hunters need better information to clarify season regulations, bag limits, and dates over extensive areas.

Increased manipulations (plowing, heavy grazing, mining, spraying) of grasslands and/or sagebrush-grasslands has altered or made unsuitable many acres formerly inhabited by prairie grouse.

Access to private and public lands with prairie grouse is becoming more difficult.

Habitat for the Columbian sharp-tail in western Montana is becoming extremely limited.

### STRATEGIES

Implement field efforts to determine regionwide the biological supply of prairie grouse by habitat type and evaluate productivity, density and distribution. Determine the amount and location of lands open, closed and restricted to prairie grouse hunting and why. Establish hunting seasons and boundaries based on grouse biology and available supply.

Allow more liberal daily bag in peak production years; increase possession limit beyond current two-day bag to provide additional hunting opportunity and harvest to those hunters traveling long distances and/or going afield longer than two days. Allow short-term bird licenses (such as 1-day or 6-day) to nonresidents in specific areas. Encourage bird hunters to determine and recognize the attitudes of specific landowners toward bird hunting on private land. Improve means for public to locate and gain access to public lands where grouse are abundant.

Develop statewide boundaries and seasons based on quantitative information obtained from regional objectives. Provide the hunting public annually with an improved, printed synopsis of bird hunting season regulations, dates, bag limits, and management units.

Where possible develop guidelines and procedures to benefit and/or do the least amount of damage to prairie grouse. Identify key breeding, production and wintering areas and focus efforts on preserving them. Determine the extent and location of habitat alterations annually to adjust hunting season boundaries and harvest objectives accordingly. Inform the public of uses of public land that are detrimental to prairie grouse. Urge improved long range management of public and private rangelands.

Assist land managers in providing the public with improved means to locate available hunting areas and minimize pressure in problem areas. Assist private landowners with hunter control and law enforcement. Strive for elimination of the inconsiderate behavior of the minority of hunters and other recreationists that tends to alienate landowners.

Seek public control and appropriate management of key areas essential to maintain and/or enhance Columbian sharp-tail habitat. Seek improved understanding and consideration for this species. Seek cooperation to transplant this species to suitable public areas (such as Moise Buffalo Range) where their distribution could be extended and their security improved.

Table 2.

## SUMMARY OF PAST, CURRENT AND PROPOSED REGIONAL MANAGEMENT PARAMETERS FOR SHARP-TAILED GROUSE

Fish & Game Region	ESTIMATED TOTAL BIRO HUNTERS					ESTIMATED ANNUAL HARVEST					HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past (Aver.)	Current	Projected			Past (Aver.)	Current (% Total)	Proposed <sup>1</sup>			Hunting Days				Days Hunted/ Sharp-tail Harvested		Sharp-tail Bagged/ Bird Hunter	
	1970-74	1975	1980	1985	1990	1970-74	1975	1980	1985	1990	(Current)	(Proposed)			1975	1980	1975	1980
											1975	1980	1985	1990				
1																		
2																		
3	4,800	5,700	6,500	7,300	7,700	1,200	1,100 ( 1%)	1,300	1,400	1,500	1,200	1,400	1,500	1,600	1.1	1.1	.2	.2
4	10,800	9,800	13,000	13,800	14,600	22,000	21,000 (26%)	26,000	27,600	29,200	12,600	16,000	16,600	17,500	.6	.6	2.1	2.0
5	4,300	4,200	5,600	6,200	6,700	8,100	7,500 ( 9%)	10,100	11,200	12,100	5,300	7,100	7,800	8,500	.7	.7	1.8	1.8
6	4,400	5,500	9,000	10,000	11,000	20,100	28,000 (34%)	45,000	50,000	55,000	15,500	27,000	30,000	33,000	.6	.6	5.0	5.0
7	4,600	6,400	7,000	8,000	9,000	23,500	24,700 (30%)	28,000	32,000	36,000	13,200	14,000	16,000	18,000	.5	.5	3.9	4.0
STATE TOTAL	28,900	31,600	41,100	45,300	49,000	74,900	82,300	110,400	122,200	133,800	47,800	65,500	71,900	78,600				
						79,800 <sup>2</sup>	87,100 <sup>2</sup>	118,000 <sup>2</sup>	131,000 <sup>2</sup>	143,000 <sup>2</sup>	52,200	70,800	78,600	85,800	.6	.6	2.4	2.5

<sup>1</sup>Proposed annual harvest by 1980 based on projected increase of hunters, hunting success and effort similar to 1975. Future harvest objectives should be considered "target" numbers only due to the many factors that influence attainment of a harvest annually.

<sup>2</sup>State total harvest exceeds sum of regions as county of kill not always designated.

Table 3.

## SUMMARY OF PAST, CURRENT AND PROPOSED REGIONAL MANAGEMENT PARAMETERS FOR SAGE GROUSE

Fish & Game Region	ESTIMATED TOTAL BIRO HUNTERS					ESTIMATED ANNUAL HARVEST					HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past (Aver.) 1970-74	Current 1975	Projected			Past (Aver.) 1970-74	Current (% Total) 1975	Proposed <sup>1</sup>			Hunting Days				Days Hunted/ Sage Grouse Harvested		Sage Grouse Bagged/ Bird Hunter	
	1970-74	1975	1980	1985	1990	1970-74	1975	1980	1985	1990	(Current) 1975	1980	1985 (Proposed)	1990	1975	1980	1975	1980
1																		
2																		
3	4,800	5,700	6,500	7,300	7,700	5,400	5,200 (13%)	6,500	7,300	7,700	4,900	6,000	6,600	7,000	.9	.9	1.1	1.0
4	10,800	9,800	13,000	13,800	14,600	8,500	8,500 (21%)	11,700	12,400	13,100	5,300	7,000	7,400	7,900	.6	.6	.9	.9
5	4,300	4,200	5,600	6,200	6,700	5,500	9,800 (24%)	8,400	9,300	10,000	6,200	5,000	5,600	6,000	.6	.6	2.3	1.5
6	4,400	5,500	9,000	10,000	11,000	11,900	9,700 (23%)	16,200	18,000	19,800	7,600	13,000	14,400	15,800	.8	.8	1.8	1.8
7	4,700	6,400	7,000	8,000	9,000	6,700	8,300 (20%)	9,800	11,200	12,600	5,900	6,900	7,800	8,800	.7	.7	1.4	1.4
	29,000	31,600	41,100	45,300	49,000	38,000	41,400	52,600	58,200	63,200	29,900	37,900	41,800	45,500				
STATE TOTAL						41,100 <sup>2</sup>	45,000 <sup>2</sup>	57,000 <sup>2</sup>	63,400 <sup>2</sup>	68,900 <sup>2</sup>	33,200	40,100	44,400	48,200	.7	.7	1.3	1.3

<sup>1</sup>Proposed annual harvest based on projected increase of hunters, hunting success and effort similar to 1975. Future harvest objectives should be considered "target" numbers as attainment of harvest in any one year is subject to many variables.

<sup>2</sup>State total harvest exceeds sum of regions as county of kill not always designated. Nonresident hunters not included in 1970-74.

## INTRODUCED UPLAND GAME BIRDS STRATEGIC PLAN - STATEWIDE

Supply and Demand

Four introduced species, ring-necked pheasant, Hungarian (grey) partridge, chukar partridge, and Merriam's turkey hold an important role in providing Montana's bird hunters, bird watchers, and wildlife appreciators with recreation and enjoyment.

Introduction of the Ring-necked Pheasant has had the greatest impact. Introduced in the early 1900's, it began thriving with the type of agriculture present in the late 1920's and 30's. By 1940, the pheasant became the State's most popular game bird. By the early 1960's, pheasant populations in many areas of the State began to decline. The decline is primarily in response to changes in agriculture including decreasing acreages of grain crops, increasing hay land and increasing livestock numbers and "clean farming" practices that deteriorate pheasant cover.

The pheasant is currently distributed on about 17,300 sq. miles, or 13 percent of Montana.

Most of their habitat is privately-controlled agricultural land. About two-thirds of the current pheasant distribution area is considered as "marginal" habitat, supporting only low densities of birds and providing only fair hunting in local areas.

Between 1948 and 1964, estimated statewide pheasant harvests ranged between 169,000 and 393,000 and from 40,000 to over 70,000 hunters were afield. By 1965, pheasants, pheasant harvests and pheasant hunters were declining. The average annual harvest during 1970-74 averaged 74,000, ranging from 96,300 in 1970 to a low of 46,400 in 1974. The pheasant is no longer the "Number 1" game bird in Montana in terms of total harvests. In 1975, the pheasant made up only 16 percent of the total upland game harvest; sharpshill grouse comprised 23 percent, the combined mountain grouse species were 32 percent, and Huns were 15 percent.

Regional information on pheasant harvests and hunting is presented in Table 4. (Only statewide summary is updated to 1976.)

The statewide supply of harvestable pheasants exceeds the current demand; this is in part due to decreased hunter interest and participation as effort required to bag a pheasant has been increasing. The prospects for an increase in the future supply of harvestable pheasants looks dim in view of intensifying agricultural trends and dependency on private land for hunting.

The Hungarian Partridge was introduced throughout the State during the years 1922-26 by the State Fish and Game Commission; earlier plants in neighboring Canada Provinces resulted in Huns being seen in Montana before 1922.

The species has filled diverse habitat throughout the prairie and valley-bottom regions of Montana. Currently it is distributed over some 94,680 sq. miles, or 75 percent of Montana. About three-quarters of the Hun distribution area is considered "marginal" habitat which usually provides only fair hunting; depending on year-to-year population fluctuations.

Between 1958 and 1969, the statewide annual harvest of Huns varied between 37,000 and 164,000 (averaged 74,000) and comprised between 9 and 18 percent of the statewide total upland game bird harvest. From 1970-74 the statewide Hun harvest has varied between 33,000 and 50,000, averaging 41,000 for the 5 years. The recent reduced annual harvests of Huns is largely attributed to the decline of pheasant hunters (and pheasants) that are now afield compared to the early 1960's.

The Hungarian partridge has the potential to attain top popularity of upland game birds that can be maintained in agricultural areas. It has demonstrated more adaptability to maintain itself over extensive areas despite agricultural changes than has the pheasant or native sharpshill grouse. Its sporting qualities as a game bird are not fully recognized by many hunters.

Having the capability to exist over extensive areas of Montana, including close proximity to human habitation and agricultural activities, it is highly appreciated for its viewing qualities.

Regional information on Hun harvests and hunting is presented in Table 5. (Only statewide summary is updated to 1976.)

The statewide supply of harvestable Hungarian partridge far exceeds current and anticipated hunting demand.

The Chukar Partridge was introduced in numerous locations throughout Montana between 1933 and 1958. Though potentially prolific, this bird has been able to survive in only a few scattered locations of Montana. In many localities where chukars initially survived and bred, severe winters eventually eliminated them.

Chukar hunting was first allowed in 13 eastern counties in 1959. Since then, chukar hunting has been allowed in all seven regions of the State in conjunction with Hungarian partridge seasons.

(continued)

Currently, distinct areas where chukar populations are known to be located are limited to some 2,600 sq. miles of which over 90 percent is located in Region 5 (Carbon County) and the remainder West of the Divide in Regions 1 and 2. A few chukars are still reported to be harvested in other regions.

Since 1974, a special late chukar season has been allowed on public and private land in Carbon County where chukars are thriving and have been only lightly harvested. This has provided a diversity of hunting experience to those ardent bird hunters who have tried pursuing this elusive game bird in rough terrain.

Regional information on chukar harvests and hunting is presented in Table 6. (Only statewide summary is updated to 1976.)

The current supply of harvestable chukars exceeds current and anticipated hunting demands. However, the hunttable area is relatively small and is limited by private ownership.

PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR PHEASANTS, HUNS AND CHUKARS

(Aver.)	Annual Harvest			Hunting Days			Days Hunted Per Bagged Bird			No. Bird Hunters Afield In Region
	Pheasant	Hun	Chukar	Pheasant	Hun	Chukar	Pheasant	Hun	Chukar	
1970-74	74,000	40,900	1,400 <sup>1</sup>	--	--	--	--	--	--	41,000
1975	58,600	56,500	800	66,100	39,000	700	1.1	.7	.9	48,900
1976	87,800	103,900	1,600	77,200	61,900	2,100	.9	.6	1.3	51,770
1980 <sup>2</sup>	78,000	64,000	1,200	86,000	45,000	1,200	1.1	.7	1.0	56,000
1985 <sup>2</sup>	86,000	72,000	1,300	95,000	50,000	1,300	1.1	.7	1.0	61,400
1990 <sup>2</sup>	94,000	78,000	1,400	103,00	55,000	1,400	1.1	.7	1.0	66,600

<sup>1</sup>1974 only

<sup>2</sup>Dependent upon natural fluctuations in bird populations, weather, expected number of hunters, etc.

STATEWIDE GOAL:

To protect and perpetuate existing introduced upland game bird species (pheasant, Hungarian partridge, and chukar partridge) and their habitat and to maintain an available, harvestable supply and increase utilization opportunity through hunting and nonconsumptive means.

6-YEAR OBJECTIVE:  
(1977-82)

To provide annually by 1980 an average of 132,000 days of upland bird hunting at a rate of 1.1 days per pheasant, .7 days per Hungarian partridge, and .8 days per chukar partridge.

(continued)

PROBLEMS

PHEASANT:

Intensifying and changing agriculture and other land uses are continuing to reduce the quality and quantity of pheasant habitat.

Pheasant hunting is dependent upon private land with a few exceptions. Decreasing acreas add to a dim outlook for future pheasant hunting opportunity.

Lack of public understanding of the needs of the pheasant, the reasons for its decline, and the role of hunting.

The Department continues to spend license money raising and releasing game farm pheasants, which is neither biologically or economically sound. The practice requires at least the price of "several" bird licenses to provide one harvested bird.

HUNGARIAN PARTRIDGE:

Hun populations could easily support much greater utilization rates each year and provide additional bird hunting opportunity. This potential is the most practical substitute available to replace hunting formerly provided by pheasants.

Specific knowledge is lacking on the distribution, population status, and availability of Huns throughout the state.

STRATEGIES

Advise the public, landowners and government agencies of land-use practices that eliminate or deteriorate pheasant habitat. Provide counsel to private and public land managers to encourage land uses and practices favorable to pheasants. Some type of economic incentive to private landowners is necessary before significant improvements of pheasant habitat can be expected over extensive areas. Maintain an intensive educational program to minimize the misuse of insecticides and herbicides. Improve pheasant cover wherever possible on Department lands. Discourage conversion of pheasant habitat and agricultural land to subdivisions and other developments. Discourage the practice of burning roadsides, ditches and railroad areas.

Work with landowners to assess amount of hunting they will tolerate and under what circumstances, and arrive to conform. Inform public of alternative bird hunting opportunities, particularly Hungarian partridge. Continue to encourage improved respect for private land and the necessity of good hunting ethics. Where feasible, acquire key tracts of land where pheasant populations could be enhanced for public use.

Maintain educational efforts through publications, news releases, public meetings, and input to government agencies, agricultural organizations, land use planners, sportsmen and bird watcher organizations. Make best application possible of the recent publication on "Montana's Ring-necked Pheasant -- History, Ecology and Management".

Improve information to public as to the biological limitations and economical realities of this practice. If the public wants this continued, then some manner of defraying the cost by charging those few that are benefitting from this is in order.

Increase information to bird hunters of Hun hunting opportunities, particularly on public lands, and regulate distribution of additional hunting pressure onto private lands.

Improve efforts of all field personnel to obtain and assemble data on Hun distribution, population trends, and the degree of availability for hunting.

(continued)

## INTRODDUCED UPLAND GAME BIRDS (continued)

PROBLEMS

## CHUKARS:

The amount of suitable habitat is extremely limited and has probably reached its capacity for chukare. Existing chukar populations could provide more hunting in some areas.

STRATEGIES

Maintain sustained harveasta within the capability of specific populations and availability of land area to public hunting. Continue to promote special seasons that provide public opportunity to see and hunt chukare and maintain compatibility with private landownere. Increase efforts to monitor chukar population trends in epecific areas.

TABLE 4. SUMMARY OF PAST, CURRENT AND PROPOSED REGIONAL MANAGEMENT PARAMETERS FOR PHEASANTS

Fish & Game Region	ESTIMATED TOTAL BIRO HUNTERS										ESTIMATED ANNUAL HARVEST								HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past		Current		Projected		Past		Current		Proposed <sup>1</sup>		Hunting Days				Days Hunted/ Pheasant		Pheasant Bagged/ Bird Hunter							
	(Aver.)								(% Total)				(Proposed)				Harvested		8ird Hunter							
	1970-74		1975		1980		1985		1990		1970-74		1975		1980		1985		1990		1975		1980			
													(Current)		(Current)		(Current)		(Current)		(Current)		(Current)			
1	6,500	7,100	8,000	8,600	9,400	8,400	5,500 (10%)	6,500	6,900	7,500	8,800	10,400	11,000	12,000	1.6	1.6	.8	.8								
2	5,500	5,900	7,000	7,500	8,200	1,600	850 ( 2%)	1,000	1,100	1,200	2,200	2,600	2,900	3,200	2.6	2.6	.1	.15								
3	4,800	5,700	6,500	7,300	7,700	2,200	1,500 ( 3%)	2,000	2,200	2,300	3,100	4,200	4,600	4,900	2.1	2.1	.3	.3								
4	10,800	9,800	13,000	13,800	14,600	27,500	13,900 (24%)	18,000	19,300	20,400	14,500	18,000	19,300	20,400	1.0	1.0	1.4	1.4								
5	4,300	4,200	5,600	6,200	6,700	8,800	6,400 (11%)	8,400	9,300	10,100	8,000	10,900	12,100	13,100	1.3	1.3	1.5	1.5								
6	4,400	5,500	9,000	10,000	11,000	11,600	15,000 (27%)	24,300	27,000	29,700	13,300	21,900	24,300	26,700	.9	.9	2.7	2.7								
7	4,600	6,700	7,000	8,000	9,000	11,100	13,400 (24%)	14,700	16,800	18,900	12,900	14,700	16,800	18,900	1.0	1.0	2.1	2.1								
	40,900	49,000	56,100	61,400	66,600	71,200	56,550	74,900	82,600	90,100	62,800	82,700	91,000	99,200												
STATE TOTAL						74,000 <sup>2</sup>	58,600 <sup>2</sup>	77,900 <sup>2</sup>	85,900 <sup>2</sup>	93,700 <sup>2</sup>	66,100	85,700	94,500	103,000	1.1	1.1	1.3	1.2								

<sup>1</sup>Future proposed annual harvests are based on projected increase of hunters with hunting success and effort similar to 1975.

Future harvest objectives should be considered "target" numbers as attainment in any one year is subject to many variables.

<sup>2</sup>State total harvest exceeds sum of regions as county of kill not always designated on questionnaire. Nonresidents not included in 1970-74.



TABLE 5.

## SUMMARY OF PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR HUNGARIAN PARTRIDGE

Fish & Game Region	ESTIMATED TOTAL BIRD HUNTERS					ESTIMATED ANNUAL HARVEST					HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past (Aver.)	Current	Projected			Past (Aver.)	Current (% Total)	Proposed <sup>1</sup>			Hunting Days				Days Hunted/ Hun		Hun Bagged/ Bird Hunter	
	1970-74	1975	1980	1985	1990	1970-74	1975	1980	1985	1990	(Current) 1975	(Proposed) 1980	1985	1990	Harvested 1975	1980	1975	1980
1	6,500	7,100	8,000	8,600	9,400	1,400	1,800 (32)	2,400	2,600	2,800	1,600	2,200	2,300	2,500	.9	.9	.3	.3
2	5,500	5,900	7,000	7,500	8,200	540	635 (12)	700	750	800	750	800	900	1,000	1.2	1.2	.1	.1
3	4,800	5,700	6,500	7,300	7,700	3,300	2,000 (42)	3,900	4,400	4,600	2,000	3,900	4,400	4,600	1.0	1.0	.4	.6
4	10,800	9,800	13,000	13,800	14,600	17,600	23,000 (422)	26,000	27,600	29,200	13,600	15,600	16,600	17,500	.6	.6	2.4	2.0
5	4,300	4,200	5,600	6,200	6,700	3,600	6,400 (122)	7,300	8,100	8,700	5,000	5,800	6,500	7,000	.8	.8	1.5	1.3
6	4,400	5,500	8,000	10,000	11,000	7,800	16,300 (302)	16,000	20,000	22,000	9,700	9,600	12,000	13,200	.6	.6	3.0	2.0
7	4,600	6,400	7,000	8,000	9,000	3,900	4,100 (82)	5,600	6,400	7,200	4,300	5,600	6,400	7,200	1.0	1.0	.6	.8
	40,900	44,600	56,100	61,400	66,600	38,100	54,200	61,900	69,900	75,300	37,000	43,500	49,100	53,000				
STATE TOTAL						40,900 <sup>2</sup>	56,500 <sup>2</sup>	64,000 <sup>2</sup>	72,000 <sup>2</sup>	77,600 <sup>2</sup>	38,800	45,000	50,400	54,600	.7	.7	1.3	1.1

<sup>1</sup>Future proposed average annual harvests are based on projected increase of hunters, hunting success and effort similar to 1975 and/or 1970-74 average. Future harvest objectives should be considered "target" numbers as attainment in any one year is subject to many variables.

<sup>2</sup>State total harvest exceeds sum of regions as county of kill is not always designated on questionnaire. Nonresident hunters not included in 1970-74.

TABLE 6.

## SUMMARY OF PAST, CURRENT AND PROPOSED REGIONAL MANAGEMENT PARAMETERS FOR CHUKAR PARTRIDGE

Fish & Game Region	ESTIMATED TOTAL BIRD HUNTERS					ESTIMATED ANNUAL HARVEST					HUNTING RECREATION				INDICATORS OF HUNTING SUCCESS AND EFFORT			
	Past	Current	Projected			Past	Current	Proposed <sup>1</sup>			(Current)	Hunting Days			Days Hunted/ Chukar		Chukar Bagged/ Bird Hunter	
	(Aver.)					(Aver.)	(% Total)					(Proposed)			Harvested		1975 1985	
	1970-74	1975	1980	1985	1990	1970-74	1975	1980	1985	1990	1975	1980	1985	1990	1975	1980	1975	1985
1	6,500	7,100	8,000	8,600	9,400	100	74 (92)	80	85	95	50	60	60	65	.7	.7	.01	.01
2	5,500	5,900	7,000	7,500	8,200	45	0	40	40	50	35	40	40	50	--	1.0	0	<.01
3																		
4																		
5	4,300	4,200	5,600	6,200	6,700	1,221 <sup>2</sup>	738 (912)	1,100	1,200	1,300	595	900	1,000	1,100	.8		.14	.2
6																		
7																		
State Total	16,300	17,200	20,600	22,300	24,300	1,366	812	1,200	1,300	1,400	678	1,200	1,300	1,400	.8	1.0	.05	.05

<sup>1</sup>Future proposed annual harvests based on projected increase of hunters and hunting success and effort similar to 1975. Future harvest objectives should be considered "target" numbers as harvest attainment in any one year is subject to many variables.

<sup>2</sup>1974 only - first year special late season.

## MERRIAM TURKEY

Supply and Demand

Merriam's Turkeys were introduced to Montana in 1954 and 1955 with wild-trapped stock from Colorado and Wyoming. Portions of the original plants thrived and subsequently provided wild turkeys for numerous other areas of Montana. Extensive trapping and transplanting introduced them into all seven regions of Montana. Populations of some of the initially successful plants have since declined and total turkey distribution area is considered to be reduced from that estimated in 1970. Wild turkeys presently occur in all 7 Fish & Game Regions. Currently, wild turkeys are known to occur on 5,093 sq. miles, or about 4 percent of Montana (excluding National Parks and Indian reservations). About 80 percent of their current distribution area is rated as "good" to "superior" habitat. Periodic severe winters apparently have curtailed the success of turkey populations that initially spread into marginal habitat.

Turkey hunting was first allowed in 1958. From 1958 through 1969, an average of 475 turkeys were harvested annually; providing successful hunting to an average of 30 percent of the hunters afield. Peak harvests of over 900 birds were reached in 1963 and 1965 when over 2,600 turkey hunters were afield. Spring gobble hunting has been allowed since 1962 in some areas. Currently, a portion of the male turkey population is harvested each spring, at a time when females are secretive and wary during their role of nesting. Seeing wild turkeys has also provided considerable enjoyment to numerous landowners, bird-watchers and wildlife viewers throughout the year.

From 1970 to 1974, an average of over 500 turkeys have been harvested annually and hunter participation is steadily increasing. In 1975, 938 turkeys were reported harvested by some 2,665 hunters. The statewide harvestable supply exceeds current demands for hunting. However, significant segments of the turkey distribution area is private land and the availability of part of the harvestable supply is limited.

In 18 consecutive hunting seasons, over 9,200 turkeys have been harvested and provided an estimated 75,000 days of turkey hunting. Coming from an original stock of less than 60 birds, the turkey "story" is a classic example of how sustained yields of wildlife can be provided where suitable habitat is available.

PAST, CURRENT AND PROPOSED STATEWIDE MANAGEMENT PARAMETERS FOR TURKEYS

	Fall Turkey Harvest	Licenses Afield	Hunting Success	Effort Days Hunted Per Turkey	Turkey Hunting Recreation
Aver.					
1970-74	516	1,330	39 %	6.6	1,400 days
1975	938	2,665	35 %	7.3	6,900 days
1976	805	2,079	39 %	7.6	6,100 days
1980	1,025	3,000	34 %	8.0	8,200 days
1985	1,200	3,500	33 %	8.0	9,600 days
1990	1,300	4,000	33 %	8.0	10,400 days

## STATEWIDE GOAL:

To protect and perpetuate wild, Merriam's turkeys and their habitat and to increase the available, harvestable supply to meet increasing demands for hunting and nonconsumptive uses.

6-YEAR OBJECTIVE:  
(1977-82)

To provide annually 8,000 days of turkey hunting at a hunting success rate of 34 percent and an average effort of 8 hunting days per harvested turkey by 1980.

(continued)

PROBLEMS

Population expansions from original plants on public lands have resulted in large numbers of turkeys now inhabiting private lands where they are generally unavailable to public hunting or viewing.

Past management efforts have been limited to the regulation of hunting based primarily on "opinion." Improved information is needed on turkey population status, distribution, and availability for hunting and observation. Increasing hunting demands on turkeys will require an improved information base for management.

Domestication of wild turkeys and crossing with domestic turkeys.

Land uses such as heavy grazing and timber removal are deteriorating turkey habitat in some areas. Energy development threatens additional areas.

Turkeys do not seem to be suited to the environment of western Montana.

Hunter participation, harvests, and recreation provided are not well known for spring gobbler seasons.

STRATEGIES

Determine why private lands are closed to turkey hunting. Seek means to control the number and distribution of hunters and harvest on private lands which will accommodate hunting, by permits, management plans, and with assistance monitoring hunters. Conduct seasons at time of year, including spring, when conflicts associated with other types of hunting or activities will be minimized or eliminated.

Implement sufficient field studies to determine the biological supply of turkeys by habitat type and evaluate productivity, density and distribution.

Maintain a sufficient degree of hunting to preserve "wild" characteristics of Merriam turkey. Avoid transplanting turkey near domestic flocks or where the future of public hunting is doubtful. Discourage closure of hunting on public lands.

Identify key turkey habitat areas and encourage consideration for their welfare on both public and private lands.

Restrict management activities in Regions 1 and 2 to the minimum necessary to provide "appreciative" or nonhunting uses of existing flocks.

Implement questionnaire and/or field checks to monitor the spring gobbler season.

Table 7.

## SUMMARY OF TURKEY DISTRIBUTION AND HUNTING DATA BY REGIONS

Fish & Game Region	TURKEY DISTRIBUTION AREA			NUMBER OF TURKEY HUNTERS			ESTIMATED ANNUAL HARVEST			Hunting Recreation		INDICATORS OF HUNTING EFFORT AND SUCCESS				
	% Of Region Turkeys	Total (I, II, III)*	% In Habitat Class	Past (Aver.)	Current	Projected	Past (Aver.)	Current	Proposed	Hunting Days (Current)	Proposed	Days Hunted Per Turkey Bagged	% Hunters Bagging	A Turkey	Bagging	
	Occur On	(% State Total)	I & II	1970-74	1975	1980	1970-74	1975	1980***	1975	1980***	1970-75	1980	1970-75	1980	
1	1 %	114 sq. mi. (.2%)	0	-	-	-										
2	2 %	244 sq. mi. (.5%)	0	-	-	-										
3	.2%	45 sq. mi. (.1%)	0	-	-	-										
4	3 %	753 sq. mi. (15%)	16 %	22	10	40	6	0	10	15	100	9.8	10.0	24 %	25 %	
5	-	1,230 sq. mi. (24%)	100 %	301	337	330	103	135	115	880	800	7.1	7.0	35 %	35 %	
6	.1%	40 sq. mi.	100 %	7	14		1	0		13	-	23.0	-	6 %	-	
7	9 %	2,707 sq. mi. (53%)	100 %	915	2,107	2,600	350	779	900	4,983	7,200	7.2	8.0	38 %	35 %	
State Total**		5,093 sq. mi.	80 %	1,330	2,665	3,000	516	938	1,025	6,900	8,100	7.1	8.0	38 %	34 %	

\* Habitat Capability Classes  
 I - Superior  
 II - Good  
 III - Marginal

\*\* State total harvest exceeds regional total  
 in some cases as a small portion of  
 questionnaire returns did not cite region.

\*\*\* Proposed average annual harvest by  
 1980 based on projected increase of  
 hunters, hunting success and effort  
 similar to 1975 and/or 1970-75 average.  
 Harvest objectives for 1980 should be  
 considered "target" numbers as attainment  
 in any one year is subject to many  
 variables.



Supply and Demand

A large variety of migratory waterfowl are included, and separated in three sub-groups: *ducks*, *geese*, and *other migratory game birds*. Montana is divided into two Flyways, the Pacific and Central. Waterfowl provide significant amounts of hunting, bird watching and aesthetic enjoyment.

Ducks Included are many species of ducks; some are residents and others are seasonal migrants. Congregations of mallards, golden-eyes and redheads winter in limited open water areas of Montana. Approximately 80,350 sq. miles, or 56 percent of Montana (excluding National Parks) is considered Fall habitat for ducks. (This does not include extensive areas of forest with limited waterfowl habitat.) A land ownership analysis of waterfowl distribution areas has not been completed; much of the prime wetland habitat is publicly owned but extensive areas of Fall habitat are private.

The total annual harvest of ducks in Montana currently ranges between about 180,000 and 230,000 ducks. About two-thirds of the harvest is made up of mallards. About 71 percent of the Montana duck harvest occurs in the Pacific Flyway. From 1971 to 1974, duck hunters averaged 1.4 ducks per day hunting there. Montana duck hunters in the Central Flyway averaged 1.6 ducks per day in that period.

In 1975, a total of 29,596 Federal "Duck Stamps" were sold in Montana; not all of these were purchased by active waterfowl hunters. Increases in duck hunting demand are expected; the current overall supply of harvestable ducks, resident and migrant, exceeds current and anticipated hunting demand in Montana.

Ducks and all species of waterfowl are receiving increased demands for nonconsumptive uses such as birdwatching and photography.

Geese Included are four species of geese, residents and migrants. Only the Canada geese are resident breeders in Montana. Some Canada geese winter in the State. Approximately 75,700 sq. miles, or 53 percent of Montana (excluding National Parks) is considered Fall habitat for geese. Private agricultural lands provide a large share of geese hunting areas.

The current annual harvest of geese ranges between about 11,000 and 14,500 geese with the number of goose hunters ranging between 11,000 to 13,000. The Canada goose comprises over 80 percent of the annual harvest, snow geese about 15 percent.

From 1971 to 1974 Pacific Flyway goose hunters in Montana took 63 percent of the average State harvest. They averaged about one goose per five days of hunting. Less geese are harvested in the Central Flyway portion of Montana, but hunters averaged about one goose per three days of hunting.

Increases in goose hunting demand are expected. Except for some resident populations, the current overall supply of harvestable geese exceeds current and anticipated hunting demand. Availability of public goose hunting space is decreasing.

A summary of duck and goose management parameters is listed in Table 8.

Other Migratory Game Birds Included are the whistling swan, little brown crane, coots, mergansers, rails and Wilson snipe.

Hunting of whistling swans has been allowed in Teton County since 1970; 500 permits have been issued each year. An average of 137 swans were taken annually during 1970-74; hunting success has ranged between 25 and 65 percent. Over 1,000 days of hunting recreation were provided. The demand for swan hunting permits is increasing and exceeds the quota of permits allowed.

Hunting of little brown cranes has been allowed in Phillips County since 1972. About 50 cranes have been taken annually.

Harvest estimates of other waterfowl species are not available; they appear to be a negligible part of waterfowl harvest on public shooting areas. The large diversity of waterfowl species seasonally present makes public waterfowl areas increasingly popular to wildlife viewers and photographers.

(continued)

STATEWIDE GOAL	3. protect and perpetuate all migratory waterfowl species and their habitat and to maintain the available, harvestable supply and meet increased demands for hunting and other recreational uses.
6-YEAR OBJECTIVE: (Pacific Flyway)	To provide annually 217,000 days of waterfowl hunting at a rate of 1.4 ducks bagged per day of hunting, .2 geese bagged per day of hunting, and .1 swans bagged per day of hunting by 1980.
6-YEAR OBJECTIVE: (Central Flyway)	To provide annually 73,000 days of waterfowl hunting at a rate of 1.9 ducks bagged per day of hunting and .25 geese bagged per day of hunting by 1980.

PROBLEMS

(The following problems are statewide in scope unless indicated otherwise.)

STRATEGIES

Maintaining waterfowl breeding populations at present or higher levels in the future. Waterfowl habitat is being lost through intensifying agriculture, residential expansions and other land uses.

Support Federal-State programs that provide incentive and direction for improving the management of private lands to benefit waterfowl and other wildlife. Discourage agricultural practices, drainage, and other developments and human activities which are detrimental to waterfowl. Provide advice on maintaining and enhancing waterfowl habitat. Identify important waterfowl habitat and encourage land-use zoning that considers wildlife needs. Improve waterfowl habitat on Department controlled areas where feasible. Discourage fall plowing of grain stubble in areas valuable to fall and winter concentrations of waterfowl. Efforts should be made to maintain, improve, and/or provide productive waterfowl breeding habitat. This includes developing marshes and water stress, putting out nesting structures for some species, and encouraging landowners to enhance their lands for waterfowl production. This can be done by: a) constructing nesting islands in water areas; b) providing nest structures; and c) controlling livestock grazing near ponds and marshes.

Improved information is needed on waterfowl breeding populations, production, habitat status, migration patterns, hunter distribution, and effects of hunting if future demands on waterfowl management are to be met.

Increase field effort to improve the overall data base for waterfowl management. Evaluations of the effects of hunting and concentrations of recreationists on specific waterfowl areas should be conducted and appropriate modifications implemented as necessary.

(continued)



WATERFOWL (continued)

PROBLEMS

Most waterfowl habitat is privately owned and public access is very limited in many areas.

Eliminating use of lead shot and replacing it with steel shot. Performance information on use of steel shot does not preclude the possibility that required widespread use of steel shot on ducks, geese and swans would result in a disproportionate increase in wounding loss, under Montana hunting conditions.

Pressure groups and litigation actions to eliminate waterfowl sport hunting or curtail it, such as by elimination of the point system for harvesting ducks.

Allowing waterfowl hunting on public lands and hunting areas without disrupting traditional waterfowl use of the areas. This includes goose hunting on traditional loafing areas resulting in reduced goose use of that area.

STRATEGIES

Endeavor to obtain cooperative agreements with landowners to allow a higher degree of public hunting. Acquire suitable areas for enhancing public opportunity to view and hunt waterfowl as state and federal funds become available. Encourage consideration for private property and stress the necessity of good hunter ethics to maintain waterfowl hunting on both private and public land.

Determine the nature and extent of the lead shot situation in Montana; identify any problem areas and seek solution on a case-by-case basis rather than the "blanket" restriction on use of lead. Urge that solutions in addition to steel shot be considered if and where lead toxicity problems are identified. Use of steel shot may be advisable in the future in certain "hot spots".

Seek all possible means to keep the general public, waterfowl hunters and bird watchers informed about the role of hunting from the biological and economic standpoint of sustaining waterfowl populations. Provide educational material to waterfowl hunters (youth and adults) to improve ability to identify waterfowl and recognize proper hunting ethics. Manage Department-controlled waterfowl areas in a manner that strives for high quality hunting and appreciative use opportunities. Intensify enforcement of regulations and seek cooperation of public to identify and curtail those individuals not in compliance with regulations or reasonable ethics.

(The following problems and strategies are more specific to local situations, but may apply to numerous areas, in one or more Fish and Game Regions.)

Hunting on any waterfowl loafing or feeding area should be limited only to the point of preventing a loss of hunting opportunity or hunter success. Establishment or confirmation of refuges or closures should be done only to increase the waterfowl use of an area to the point that it provides greater hunting opportunity. If creating or maintaining a closure or refuge will increase the number of hunter days and waterfowl harvested in the surrounding area to where it exceeds the hunting opportunity and success which would be available in and around the refuge were it open, then a closure should be considered. If hunter use is sufficient to keep geese from loafing in a hunted area, restrictions on that hunting should be enacted. Where goose management is the primary concern, duck hunters should not be allowed to hunt on loafing areas closed to geese shooting. However, if an area is managed to provide duck hunting primarily rather than to serve as a goose rearing area, then more over-water shooting should be allowed.

(continued)

PROBLEMS

Over-water shooting resulting in the loss of large build-ups of migrant waterfowl over extensive areas where large concentrations normally occurred.

Over harvest of resident breeding Canada geese.

Closure of private lands to duck and goose field hunters.

Closure of private lands to prevent access of waterfowl hunters to public waters.

Leasing of private lands for waterfowl hunting.

STRATEGIES

If fall migrant populations loafing in an area decline markedly for several years in an area where they originally were high, measures should be considered to limit over-water shooting to try to induce more migrants to loaf in that area. This should be done only after studies indicate that over-water shooting is probably one of the main causes in the observed decline.

In areas where increased production of Canada geese is of primary importance it may be desirable to limit the harvest of resident geese. This should be accomplished by: a) over-water hunting closures from some areas or for some periods; b) limiting bag limits during critical periods; or c) any other restriction necessary to reduce goose kill in areas and at times when the take of resident geese is likely to be too high for high goose production in that area in following years. If at any time sportsman in a given area ask that a loafing area be closed permanently to the taking of waterfowl to protect that species and allow it to increase, steps should be considered to go all the way with such a plan. If a species needs protection on loafing areas in order to increase then close the entire home range of the birds in question to the taking of that species. This could be done on a countywide basis.

Where fields which are attracting feeding waterfowl are closed to hunting, efforts should be made to get those lands opened to at least a few hunters to encourage the birds to move to other areas. Landowners should be contacted and efforts made to get their cooperation in allowing at least some hunting.

As above, landowners should be contacted and efforts made to get them to allow hunters access to waters open to public hunting. Access problems on any body of water could be alleviated by purchasing an access site somewhere on the water to allow sportsmen to launch boats or to hunt from shore there.

Leasing of private lands for waterfowl shooting can pose future problems for public waterfowl shooting in eastern Montana. Solutions include: a) purchase of lands in critical areas to develop for waterfowl use to reduce pressure on nearby private lands and to provide a place to hunt; b) purchase of lands which in the past were prime fall waterfowl feeding areas; and c) allowing over-water shooting in areas where field-feeding areas are leased to break-up established field-feeding patterns.

(continued)

PROBLEMS

Efforts by special interest groups to close public lands to waterfowl hunting, either through establishment of closures or refuges.

Increasingly restrictive Federal waterfowl hunting regulations in the Central Flyway portion of Montana where overall hunting pressure on waterfowl is relatively light.

Loss of field-feeding habitat.

Fluctuating water levels on water storage impoundments.

Lack of waterfowl habitat and public hunting and appreciative use stress is most critical near human population centers in western and southern portions of Montana.

Maintaining public access for waterfowl hunting on Indian Reservations.

STRATEGIES

All efforts to close public waters to waterfowl shooting by special interest groups should be opposed unless studies indicate that over-water hunting in the area is detrimental to the waterfowl populations involved or may ultimately result in reduced hunting opportunity and success in that area.

Adopt regulations which provide for: a) larger bag limits; b) longer seasons; c) high plains seasons; and d) drake mallard, teal, and other bonus duck limits and seasons; and e) taking of sandhill cranes in Region 7. Liberal regulations should be chosen unless hunting pressure will be sufficient to be detrimental to the populations of the species involved.

If fall plowing becomes common in areas where field-feeding populations were once abundant, efforts should be made to try to convince some landowners to leave critical fields in stubble through the fall. Fields on state-owned game management areas should be left as stubble to induce waterfowl to feed there.

Seek improved consideration for waterfowl needs in specific areas where water level control problems persist.

Seek an improved funding base and a systematic means of selecting and acquiring areas for enhancement of waterfowl management.

Seek cooperative agreements with various tribal councils.

TABLE 8.

## SUMMARY OF PAST, CURRENT AND PROPOSED MANAGEMENT PARAMETERS FOR WATERFOWL

DUCKS																		
(Pacific Flyway - Montana)																		
Fish & Game Region	NUMBER HUNTERS AFIELD					ESTIMATED ANNUAL HARVEST					RECREATION HUNTING DAYS					INDICATORS OF HUNTING SUCCESS Birds Bagged/ Day Hunted		
	1971- 1974	1975	1980	1985	1990	1971- 1974	1975	1980	1985	1990	1971- 1974	1975	1980	1985	1990	1971- 1974	1975	1980
1, 2, 3, 4	14,100	17,000	20,000	23,100	24,800	140,000	165,800	200,000	222,000	239,000	97,000	121,900	148,000	165,000	177,000	1.4	1.4	1.4
(Central Flyway - Montana)																		
4, 5, 6, 7	6,100	6,800	9,500	11,500	12,600	56,800	70,100	88,000	104,000	113,000	35,800	37,800	47,000	55,000	60,000	1.6	1.9	1.9
STATE <sup>3</sup>	20,200	23,800 <sup>1</sup>	29,500 <sup>2</sup>	34,600 <sup>2</sup>	37,400 <sup>2</sup>	196,800	235,900 <sup>1</sup>	288,000	326,000	352,000	132,800	159,700	195,000	220,000	237,000	1.5	1.5	1.5
GEESE																		
(Pacific Flyway - Montana)																		
1, 2, 3, 4	7,600	10,200	12,300	14,300	15,300	7,500	10,700	11,200	12,900	13,800	41,000	57,200	67,000	77,400	82,800	.18	.19	.2
(Central Flyway - Montana)																		
4, 5, 6, 7	3,550	3,800	5,000	6,500	7,200	4,400	4,500	6,500	8,500	9,400	12,300	15,500	26,000	34,000	37,600	.36	.29	.25
STATE	11,150	14,000 <sup>1</sup>	17,300 <sup>2</sup>	20,800 <sup>2</sup>	22,500 <sup>2</sup>	11,900	15,200 <sup>1</sup>	17,700	21,400	23,200	53,300	72,700	93,000	111,400	120,400	.22	.21	.2
SWAN																		
(Pacific Flyway - Teton County Only)																		
	288	362	400	400	400	127	221	200	200	200	1,183	874	1,600	1,600	1,600	.1	.25	.1

<sup>1</sup> Resident hunters only, in 1975 there were also 1,770 nonresident waterfowl hunters (harvested 10,800 ducks and 1,010 geese).

<sup>2</sup> Includes residents and nonresidents.

<sup>3</sup> In 1976, the statewide harvest of ducks and geese, respectively, was 215,200 and 12,700 with 25,000 active waterfowl hunters.

Supply and Demand

This plan segment relates to those native mammal species whose pelt is currently or potentially of commercial value. Included are those "furbearing animals" listed in current Fish and Game laws (marten, otter, muskrat, fisher, mink, beaver and bobcat), "predatory animals" (coyote, weasel and skunk), and raccoon, badger, fox, lynx and wolverine.

Bobcat, fox and coyote comprised about 18 percent (by number) and a high percent of the fur value of some 95,000 pelts of 14 species reported taken by 1,336 active, licensed trappers in 1975-76. Estimates of the numbers of these species also taken by hunting and predator control activities are not available, but probably exceed the trapping take by many times because of current high fur prices. It is difficult to manage the fur harvest on a sustained yield basis because of extremes in fur price fluctuations and the associated economics.

Numbers of trappers are currently increasing; 2,048 were reported active in 1976 compared to 1,336 in 1975 and 565 in 1970. Fluctuations in fur prices preclude any long range projections as to the future change in number of active trappers.

The recent acceleration of interest in predator hunting is expected to continue dependent on fur values and predator populations. Species such as the coyote and fox have the potential to provide a large volume of recreational opportunity (viewing, photography, and hunting) to the public. They not only add to the diversity of choice, but are available throughout the year and on extensive areas of public and private land.

Supply of Fur Take Estimates in Recent Years and Projected Number of Trappers

	5-Year Average 1970-74*	1975*	1976*	1980
Licenses Sold	1,321	1,532	2,289	2,500
Active Trappers	917	1,336	2,048	2,300
Mink	3,670	2,544	4,258	
Muskrat	28,362	52,069	80,697	
Beaver	11,845	8,627	18,755	
Weasel	530	632	1,674	
Bobcat	1,745	1,067	856	
Skunk	4,482	6,644	8,571	
Coyote	3,778	9,117	11,484	
Raccoon	3,758	4,669	6,170	
Badger	790	1,272	2,085	
Fox	5,159	7,084	5,991	
Canada lynx	166	244	200	
Wolverine	19	40	58	
Marten	401	971	2,086	
Otter	36	28	48	
TOTAL	64,741	95,042	142,937	

\*trapping year

## STATEWIDE GOAL:

To protect and perpetuate furbearers and their habitat, and to maintain populations for all types of recreation, hunting, trapping and appreciative uses. To minimize conflicts with specific furbearers and human health, private property or agricultural values.

6-YEAR OBJECTIVE:  
(1977-82)

To implement specific studies and upgrade basic furbearer management information on an extensive basis. To implement management plans for the bobcat and other selected species. To provide an estimated 69,000 trapping days\*\* annually. To assess the demand for recreational uses of furbearers.

\*\*estimated 30 days afield per trapper

PROBLEMS

The basic biological information necessary to manage, or plan for the management of furbearers is lacking. Improved knowledge is essential to: determine the status of the various species and to ascertain the impacts of land use changes and increasing consumptive uses; to evaluate predator-prey relationships; minimize conflicts with agricultural interests and private property, and to protect human health.

Only "legally-defined" furbearers require a license to trap or hunt and have seasons to regulate the harvest. Species important in the fur trade and not classed by law as "furbearers" or "game" animals are subject to an unregulated harvest which may jeopardize their population status. The rate of participation in hunting furbearing animals such as the coyote, fox and bobcat is not known.

Maintaining sustained yield fur harvests is difficult because of erratic changes in fur prices. Over harvest may occur on some species or in specific areas when high fur prices prevail.

Inflated fur values have greatly increased the participation rate of people involved in trapping and "predator" hunting. This has caused some negative effects from the standpoint of private land owners and livestock raisers.

The beaver should receive increased attention because of its unique ecological relationship to: riparian vegetation, water quality and flow rates, other terrestrial and aquatic fauna -- and its capability for conflict with agriculture and private property.

Mortality of non-target species during specific predator control efforts.

STRATEGIES

Implement special intensive studies and extensive field effort to upgrade information on furbearers population status, habitat requirements, and effects of harvesting and/or population control attempts. Continue intensive field research on coyote-prey relationships and implement pertinent findings into public information and various levels of decision making. Continue to cooperate with appropriate health and agricultural authorities to minimize or eliminate effects of diseases vectored through furbearers to man or domestic livestock.

Evaluate the status of lynx, fox, and wolverine and seek consideration for adding these species to the furbearer list. Implement management plans associated with reclassifying the bobcat as a furbearer. Encourage legislation that would require a furbearer hunting license by all persons hunting them on public lands or private lands of others.

Improve basic information on available supplies of harvestable furbearers. Improve capability to monitor the changing rates of harvest through coordination with fur dealers, licensed aerial hunters, livestock board, and trappers. Evaluate the impact of the variety of trapping and hunting methods that are being used. For example, the "hanging set" for bobcat should not continue to be allowed. Require fur trappers to report where and how many animals they take.

Provide information to predator hunters to direct them to public lands and/or to private lands where they are welcome. Provide guidelines for their hunting techniques to improve the quality of the sport and to minimize conflicts on private land. Curtail, or limit the use of snares, where they are detrimental to non-target species such as livestock, eagles, etc.

Continue or expand where necessary current census techniques such as cache counts and organize and utilize observations of field personnel and cooperators to determine effects of trapping and adjust trapping regulations accordingly. Extension of the trapping season into April is recommended in eastern Montana. Assist landowners and direct trappers to problem areas where they are requested. Monitor the status of beaver in key areas and implement management that utilize fully their positive benefits to stream and marsh ecology. (For example, the value of beaver is cited in the moose segment of plan.)

Seek cooperative efforts of Livestock-Predator Control Board to maximize efforts to minimize losses to non-target species. Require identification numbers on coyote getters and/or other predator control devices.

(continued)

PROBLEMS

There is a lack of public understanding and extreme polarization of views on "predator" and predator control.

There is concern that hunter license fees currently being spent on predator control in livestock complaint areas are not producing the intended or desired benefits.

Information on the amount of recreation (hunting, trapping and appreciative uses) associated with the furbearer group is totally lacking.

Unnecessary or out-dated regulations.

STRATEGIES

The Department needs to formulate and clarify its position on "predators" and predator management -- as a first step to improve this situation.

Seek evaluation of the use of such funds with emphasis on an objective analysis of the direct and indirect results.

Implement appropriate surveys and/or other means to ascertain this demand.

Discontinue shipping permit and tags currently required on marten.





## NONGAME MAMMALS STRATEGIC PLAN - STATEWIDE

This plan segment pertains to 74 species of mammals, subjected to a variety of consumptive and nonconsumptive uses by the public.

Consumptive uses include hunting and trapping for recreation and commercial value, and collection for scientific and educational purposes. The latter activity is directed at all species and is limited in scope, since relatively few people are believed to participate in scientific collecting activities. Hunting and trapping activities, however, are more widespread. There is currently no estimate of the number of recreation days spent in hunting or trapping nongame mammals, but it is believed to be substantial.

Rabbits and hares are hunted for sport, food and commercial uses. The value of this resource for recreational purposes has not been assessed. Populations are believed secure, although fluctuations are common. Cottontails, in particular, could provide a significantly greater amount of hunting recreation in the future.

Prairie dogs, ground squirrels, and chucks also provide opportunities for recreational hunting. Although these species

generally are not eaten, interest in hunting them is widespread. The sport of "varmint" hunting has increased in recent years due to increased leisure time and affluence. Such activities provide an ideal training ground for youngsters learning to hunt. At the other extreme is the dedicated varmint hunter who may invest large amounts of money in highly specialized equipment. Some nonresidents come from other states solely to shoot prairie dogs. These species, thus, constitute a very valuable recreational resource which has not been measured.

Several nongame species are hunted or trapped for their fur. These include fox, lynx, wolverine, raccoon and badger. Fur prices strongly influence the degree of consumptive utilization to which these are annually subjected.

Nonconsumptive uses include nature study and photography, and the more rigorous academic study for scientific and educational purposes. Informal nature study and photography by members of the public is generally limited to those mammals which are larger and more readily observed. Academic studies extend to all species.

Both consumptive and nonconsumptive uses of nongame mammals are presently undetermined. As the population of Montana grows, and as leisure time increases, the value of these resources will increase appreciably.

## STATEWIDE GOAL:

To manage nongame mammals and their habitats for human enjoyment, for scientific purposes, and to secure their perpetuation as members of ecosystems, consistent with other land uses.

6-YEAR OBJECTIVE:  
(1977-82)

To determine the status, distribution, and habitat requirements for at least five species of nongame mammals for which priorities are highest. To assess public demand for consumptive and nonconsumptive use of nongame mammals.

(continued)

# NONGAME MAMMALS STATEWIDE (continued)

## PROBLEMS

Habitat changes are taking place which have an unknown effect on many species.

"Predators" and "noxious rodent" control programs are taking place with little regard for welfare of the wildlife community.

Some landowner/managers feel that some nongame mammals compete with domestic livestock for forage, or provide other conflicts with agriculture.

There is a lack of positive management for some species (i.e. the taking of nongame mammals is permitted without restriction).

Hunter license fees provide the primary support for current nongame studies. Funding and manpower levels are inadequate to develop a nongame conservation program pursuant to legislative intent.

Some department personnel are apathetic toward nongame mammals.

Nongame mammals have been slighted due to the administrative demands of endangered species programs.

The nature, scope and degree of consumptive and nonconsumptive uses of nongame mammals are undetermined.

## STRATEGIES

Organize a citizen's nongame advisory committee to aid in identifying priorities. Identify habitat requirements of selected nongame mammals, and develop appropriate land use recommendations.

Identify "side effects" of control programs and develop recommendations to deal with them.

Demonstrate factual ecological relationships, based on research, through information and education efforts.

Develop management recommendations for selected species based on results of status determining investigations.

Seek public understanding and support for developing an independent source of funding for the nongame program.

Involve more department people in nongame-oriented activities.

Require endangered species activities to be fiscally independent from nongame activities.

Compile data on utilization of nongame mammals through appropriate surveys. Identify individuals and organizations interested in nongame conservation.

## NONGAME BIRDS STRATEGIC PLAN - STATEWIDE

125

This plan segment pertains to 251 species of birds, subjected to a variety of uses which are primarily nonconsumptive in nature. In addition, there are 39 species of shorebirds classified as "migratory game birds," which are not hunted and should be considered "nongame."

Consumptive uses of nongame birds are limited. Some birds are collected for scientific and educational purposes. Raptors are occasionally taken for falconry.

Nonconsumptive use of nongame birds is substantial. Birdwatching and winter bird feeding are popular hobbies for many people. Bird photography is popular, and continues to grow. These activities extend to all species. There is no current estimate of the number of recreation days provided by nongame birds, but it is certainly substantial, and expected to increase in future years.

### STATEWIDE GOAL:

To manage nongame birds and their habitats for human enjoyment, for scientific purposes, and to secure their perpetuation as members of ecosystems, consistent with other land uses.

### 6-YEAR OBJECTIVE: (1977-82)

To determine the status, distribution and habitat requirements for at least fifteen species of nongame birds for which priorities are highest. To assess public demand for valid consumptive and nonconsumptive use of nongame birds.

### PROBLEMS

Habitat changes are taking place which have an unknown effect on many species.

Use of chemical agents for agricultural purposes poses an ongoing threat to certain species.

Golden eagles eat domestic lambs.

Many landowner/managers feel that certain nongame birds are "no good;" they are apathetic to positive management.

### STRATEGIES

Organize a citizen's nongame advisory committee to aid in identifying priorities. Identify habitat requirements of selected nongame birds, and develop appropriate land use recommendations.

Identify impacts of chemical agents on the nongame bird community and develop recommendations to deal with them.

Encourage the use of lambing sheds, where feasible, to reduce the "baiting" effects of range lambing. Provide advice on lambing procedures which minimize predation.

Demonstrate factual ecological relationships, based on research, through an information and education program.

(continued)

PROBLEMS

Montana does not allow the hunting of doves.

Hunter license fees provide the primary support for current nongame studies. Funding and manpower levels are inadequate to develop a nongame conservation program pursuant to legislative intent.

Some department personnel are apathetic toward nongame birds.

Nongame birds have been slighted due to the administrative demands of endangered species programs.

The nature, scope and degree of the various uses of nongame birds are undetermined.

STRATEGIES

Seek support to reclassify the mourning dove as a migratory game bird.

Seek public understanding and support for developing an independent source of funding for the nongame program.

Involve more department people in nongame-oriented activities.

Require endangered species activities to be fiscally independent from nongame activities.

Compile data on utilization of nongame birds based on appropriate surveys. Identify individuals and organizations interested in nongame conservation.

## NONGAME REPTILES STRATEGIC PLAN - STATEWIDE

This plan segment pertains to 16 species of reptiles. Use of reptiles is limited due to their secretive natures.

Consumptive uses include collection of rattlesnakes for trophy and commercial value, and collection of all species for scientific and educational purposes. Snapping turtles are occasionally taken for human consumption. There are a few

dedicated snake catchers in Montana that annually capture a significant number of rattlesnakes for venom, meat and trophy values. The extent of consumptive activities to which reptiles are subjected has not been measured.

Nonconsumptive uses of reptiles include nature study and photography; for instance, painted turtles are frequently captured for use as pets by children.

STATEWIDE GOAL:	To manage nongame reptiles and their habitats for human enjoyment, for scientific purposes, and to secure their perpetuation as members of ecosystems, consistent with other land uses.
6-YEAR OBJECTIVE (1977-82)	To determine the status, distribution and habitat requirements for at least two species of reptiles for which priorities are highest. To assess public demand for consumptive and nonconsumptive use of nongame reptiles.

PROBLEMS

Habitat changes are taking place which have an unknown effect on many species.

Hunter license fees provide the primary support for current nongame studies.

Nongame reptiles have been ignored in the past, and receive only token attention at present.

Some department personnel are sympathetic toward nongame reptiles.

Nongame reptiles have been slighted due to the administrative demands of endangered species programs.

The nature, scope and degree of consumptive and nonconsumptive uses of nongame reptiles are undetermined.

STRATEGIES

Organize a citizen's nongame advisory committee to aid in identifying priorities. Identify habitat requirements of selected species and develop land use recommendations.

Develop an independent source of funding for the nongame program and identify the public supporting these species.

Develop an expanded nongame conservation effort backed by an effective I & E program.

Involve more department people in nongame-oriented activities.

Require endangered species activities to be fiscally independent from nongame activities.

Identify individuals and organizations interested in nongame conservation. Compile data on utilization of nongame reptiles.



## ENDANGERED SPECIES STRATEGIC PLAN - STATEWIDE

This plan segment pertains to four species which currently appear on both State and Federal lists of endangered species. They are the Northern Rocky Mountain wolf, the black-footed ferret, the American peregrine falcon and the whooping crane.

Consumptive use of endangered species is prohibited by both State and Federal law. Nonconsumptive use is limited due to the extreme scarcity of all species. Because of their scarcity, a single observation is regarded as a valuable experience.

Management of each of the endangered species will be outlined in a recovery plan developed for each species. The recommended responsibilities of the Montana Department of Fish and Game will be outlined in those plans. It will then be up to the department to accept or reject its responsibility assignments.

## STATEWIDE GOAL:

To protect, maintain, and if possible, enhance numbers of those species of wildlife indigenous to this State that may be found to be endangered within the State.

6-YEAR OBJECTIVE:  
(1977-82)

To participate in recovery plan implementation for endangered species.

PROBLEMS

Populations are dangerously low.

Suitable habitat is lacking in some cases.

Environmental degradation threatens the continued existence of these species.

Public apathy toward endangered species precludes progressive management.

Presence of endangered species may be viewed as a threat to existing land use priorities.

Management programs for endangered species are wholly inadequate.

STRATEGIES

Acquire or protect key habitat where appropriate.

Participate in recovery plan implementation.

Identify problem areas and make every effort to reverse trends which are detrimental to the welfare of endangered species.

Develop and implement appropriate information and education measures designed to reduce public apathy.

Seek public awareness and understanding of the needs of endangered species.

Obtain a source of funding earmarked specifically for endangered species.

(continued)

## ENDANGERED SPECIES STATEWIDE (continued)

PROBLEMS

Administration of the endangered species program is at the expense of the nongame program.

Some department personnel oppose endangered species recovery efforts.

Federal intervention via critical habitat restrictions and control of "taking" complicates management procedures and precipitates interagency hostility.

STRATEGIES

Develop an independent source of funding for endangered species.

Develop a commission policy statement on endangered species conservation.

Continue to request the Fish and Wildlife Service to take a more realistic approach toward administration of the Endangered Species Act. More attention needs to be focused on the needs and recommendations of state wildlife management agencies. Current U.S. Fish & Wildlife Service administrative attitudes in many cases preclude effective endangered species recovery programs, thus negating the intent of the Endangered Species Act.



Wildlife MethodologyDetermination of big game species distribution area--

Mylar overlays of big game species distribution areas were prepared for all 1974 big game hunting districts using U.S.G.S. Quadrangle maps (1:250,000 or 1 inch = 4 miles) as a base. Overlays were drawn primarily by regional wildlife biologists, with assistance from wardens and regional supervisors. Indian reservations and national parks were not included.

Three types of distribution areas were mapped:

1. Overall distribution-- A designated area (blue line) which is known to have the species present at some time of the year. Overall distribution was mapped for all big game species except mountain lion. Areas of high and low security were designated for mule deer where known.
  2. Winter distribution-- The general areas known to be used during various degrees of winter severity was designated (red line) and known concentration areas during severe winters were marked in solid red. Wintering big game areas were designated where distinctively known; primarily in mountainous areas of western and central Montana.
  3. Other distinct seasonal activity areas-- Known special use areas were penciled on separate overlays; included were elk-calving areas, migration routes, and in a few cases, special use areas for other species. It should be emphasized that specific seasonal use areas are known only for a few species in some areas -- because these special areas have not been identified and mapped should not preclude their existence within each species' overall distribution area.
- A statewide collection of big game overlays is filed at the department's Wildlife Research Office, Montana State University Campus, Bozeman. Copies of big game overlays for the seven regional areas of the state are also on file at Department of Fish and Game Regional Offices (except Bozeman).

Determination of upland game bird and waterfowl distribution and habitat capability zones--

Mylar overlays were drawn for upland game birds on a county basis (with 1:250,000 U.S.G.S. base maps) to designate their known overall distribution, which was broken down into three zones of "Habitat Capability":

Class I -- (red line) The majority of this zone consistently has capability for higher known densities of this species. This is intended for the distinctive, larger blocks of superior habitat that provide good to excellent hunting.

Class II -- (green line) This general zone consistently has capability for moderate densities of this species; local limitations to habitat preclude it from Class I. Fair to good hunting is provided over most of this zone.

Class III -- (brown line) This zone usually has only relatively low densities of this species and is distinctly marginal habitat. Only fair hunting can be expected in localized areas of the zone.

Known sharp-tailed grouse breeding grounds were marked with red dots and sage grouse breeding areas marked with green dots. Some sage grouse wintering areas were also designated.

Waterfowl fall habitat mapping--

Mylar overlays were drawn for known fall use areas (aquatic and terrestrial) of "ducks" and "geese" using the 1:250,000 U.S.G.S. base maps on a county area basis.

Three zones of seasonal habitat capability were designated for ducks and for geese:

I (prime) -- zone contains an abundance of high quality, permanent water areas and sources of food and consistently has a high capability to hold fall concentrations of waterfowl.

II (good) -- zone contains numerous (variable quality) water areas and feeding areas for waterfowl and has capability to attract fall waterfowl populations.

III (fair) -- zone contains only occasional water areas and/or feeding areas valuable for fall waterfowl use -- has only scattered or intermittent use by waterfowl during fall.

Known winter concentration areas for waterfowl were also designated.

All big game overall distribution areas, winter areas and game bird and waterfowl habitat overlays were planimetered for area size (sq. miles) using an electronic planimeter provided by the Engineering Department at Montana State University.

(continued)

### Wildlife Methodology (continued)

#### Landownership (public-private) status of big game distribution areas--

The 1:250,000 scale big game overall distribution overlays were reduced to 1:500,000 regional composites through use of facilities at the Earth Sciences Department, Montana State University. Estimates of the percent of each species distribution area that is private, state or Federal were made with use of the 1967 Landownership Status Map (1:500,000) available from the U.S. Bureau of Land Management. The break-down of landownership status for each big game species' distribution area in each hunting district was accumulated into regional and statewide totals.

#### Determination of supply--

*Supply* is defined as the quantity of game animals and birds that can annually be harvested from a population or unit of area, under the management in effect. The *supply* of hunting recreation days is a function of the harvest, number of hunters, percent hunter success and days of effort expended per harvested animal by specific area and the management in effect.

Regional wildlife biologists made estimations of the *expected annual average harvest* of big game species from each hunting district (with current management and circumstances) and, using the best indicators available, they estimated the *maximum sustainable harvest* for each species and hunting district. Criteria used in these harvestable supply estimates included species population trends and productivity status, sex-age composition, harvest trends, species distribution in regard to public-private landownership and effects of land closure and/or restrictions to public access. A sample of the big game supply determination format is attached (page 133). Regional supplies of harvestable big game species are the summation from all hunting districts in the region. The "reliability" of the supply estimates for individual species in specific hunting districts is expected to have a wide range of variability. The "state of the arts" varies considerably between the types of species involved, terrain and climatic factors, and levels of field effort that can

be applied with existing regional manpower. For instance, data on population size and productivity rates of antelope herds and certain elk herds that can periodically be observed are much improved over data available on species such as moose or white-tailed deer in heavy cover. The highest reliability of hunter questionnaire data lies in regional and statewide totals; planning information on supply and demand is assembled on a regional and statewide basis. Numbers of deer and elk licenses affixed in 1985 and 1990 were projected on basis of Montana population growth. Montana population projections (Appendix, Table 1) were provided by the Montana Department of Community Affairs (Dodge, August 1977 - draft copy).

Small game species were assumed to have overall harvestable supplies that exceed current and anticipated hunting demands. Thus, game bird harvests were projected primarily on the basis of increased human population and current hunter participation rates in 1980, 1985 and 1990.

Big game harvest objectives generally exceed current trends. Attainment of stated objectives will depend upon the degree of success in solving major problems and the feasibility of changing limitations in the current management framework. Future harvest objectives must be considered "target" numbers as attainment in any one year is subject to many variables.

Species \_\_\_\_\_ Hunting District \_\_\_\_\_ Area \_\_\_\_\_ sq. miles Percent of Hunting District Species is present on \_\_\_\_\_ %

1. *Species Distributional Area - Land Ownership Status (Public/Private)*

A gross analysis of land ownership status of this species distributional area (est. from 1,500,000 acs. 1973 BLM map) indicates the following major categories of public/private ownership.

Overall Distribution \_\_\_\_\_ sq. mi. Minimum security \_\_\_\_\_ sq. mi.  
 Public \_\_\_\_\_ sq. mi. Public \_\_\_\_\_ sq. mi.  
 State School \_\_\_\_\_ sq. mi. State School \_\_\_\_\_ sq. mi.  
 Private \_\_\_\_\_ sq. mi. Private \_\_\_\_\_ sq. mi.

11. *Harvest Trends and Population Status or Trend*

*Harvest Trends (Quotations "Point")* *Population Status or Trend*

(1965 - 1970 average) \_\_\_\_\_  
 1971 \_\_\_\_\_  
 1972 \_\_\_\_\_  
 1973 \_\_\_\_\_  
 1974 \_\_\_\_\_

4-year average \_\_\_\_\_

Productivity Trend \_\_\_\_\_  
 Increasing \_\_\_\_\_  
 Stable \_\_\_\_\_  
 Decreasing \_\_\_\_\_

111. *Estimation of "Supply" of Harvestable Animals - Available and Not Available*

1. *What is the supported annual average harvest from this Hunting District (with current management and circumstances)?*

2. *What portion of current harvest do you estimate comes from public land?*

\_\_\_\_\_ animals

3. *Based on best indicators you have available can current harvest rates biologically be*

\_\_\_\_\_ sustained, but not increased \_\_\_\_\_  
 \_\_\_\_\_ questionable, at current levels (reduce \_\_\_\_\_ %)  
 \_\_\_\_\_ sustained, but not increased (reduce \_\_\_\_\_ %)  
 \_\_\_\_\_ sustained, and increased slightly (increase \_\_\_\_\_ %)  
 \_\_\_\_\_ sustained, and increased considerably (increase \_\_\_\_\_ %)  
 \_\_\_\_\_ (other) \_\_\_\_\_

ESTIMATE

4. *Are significant amounts of Private land and/or School land (occupied by this species) are presently limited to public access for hunting? Yes \_\_\_\_\_ No \_\_\_\_\_ Are fees (for hunting or trespass) known to be charged by private landowners? Yes \_\_\_\_\_ No \_\_\_\_\_*

*What is your estimate of the degree of land closure or restriction by private owners?*

	Total	Public Land	Private Land	School	Other
Closed	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.
Severely Restricted	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.
Open only by fee	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.
"Open"	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.	_____ sq. mi.

5. *To what degree would you estimate the above Private land closures or restrictions are reducing the possible harvest? Percent of current harvest \_\_\_\_\_ % of \_\_\_\_\_ available harvestable animals.*

6. *Are significant portions of Public land (occupied by this species) blocked from public use by private land closure policies? Yes \_\_\_\_\_ No \_\_\_\_\_*  
*To the extent that harvestable animals are blocked from public land are unavailable? Yes \_\_\_\_\_ No \_\_\_\_\_*

7. *Has an analysis of Private land ownership policies toward hunting been made to the extent that the number of animals harvested is known (the size and status (open-closed) of their holdings can be quantified)? Yes \_\_\_\_\_ No \_\_\_\_\_*

1 "Open" means only it was not closed "closed," "severely restricted" or "fees."



APPENDIX TABLE I

MONTANA HUMAN POPULATION PROJECTIONS<sup>1</sup>

(By Fish and Game Regions)

<u>Region</u>	<u>1960</u>	<u>1970</u>	<u>(1975)</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
1	65,486	79,061	86,300	91,834	102,455	112,648
2	88,697	100,679	111,900	119,913	130,936	140,954
3	105,173	106,648	116,000	121,187	129,353	136,306
4	167,426	171,341	178,200	184,130	196,121	207,072
5	115,273	119,310	131,700	144,517	163,779	182,322
6	75,116	63,044	64,800	66,627	71,086	75,512
7 <sup>2</sup>	<u>58,549</u>	<u>54,262</u>	<u>56,900</u>	<u>61,822</u>	<u>65,998</u>	<u>69,262</u>
State Total	675,720	694,365	745,800	790,030	859,728	924,076

<sup>1</sup>From Department of Community Affairs - August 30, 1977 (incomplete draft)

<sup>2</sup>Includes Richland County



Water resources in Montana are diversified and widely distributed throughout the State. The Missouri River system drains approximately 82 percent (120,000 sq. miles) of the state's area. Two primary tributaries of the Columbia River (Clark Fork of the Columbia River and Kootenai River) drain the 26,000 square miles of the state located west of the Continental Divide. This is 17 percent of the state's total area. A small area of about 700 square miles near the east boundary of Glacier Park drains northward into the Hudson Bay drainage.

Surveys and other field activities have identified 9,000 individual waters. Approximately 16,000 miles of streams and 3,400 lakes provide the base for the current recreational fishery. Other waters have value for game fish reproduction, water quality maintenance and nonconsumptive use of aquatic organisms. Seventy-five percent of the stream miles support salmonids and the balance contain varying combinations of non-salmonid species. The lakes include mountain lakes, natural lakes, reservoirs and farm ponds. Sixty percent of these waters support trout populations.

The waters of the state support approximately 80 species of fish, 16 species of amphibians and an undetermined number of aquatic invertebrates. Fifty-two species of fish are native and 28 have been introduced. These exotic species include a wide range of fish from some of the most popular game fish to tropical fish with very limited distribution. Some of these introductions have created significant fishery management problems.

The popularity of fishing for recreation and as a source of food has increased significantly in recent years. There has also been an increasing interest in aquatic organisms for aesthetic, scientific or other nonconsumptive uses as well as an increasing awareness of the value of these animals as indicators of environmental well-being.

Although these animals provide a variety of benefits, only the recreational and commercial fisheries have been quantified. License sales records indicate that over 28 percent (210,000 people) of the state's residents participate in the recreational fishery. In addition, more than 75,000 nonresidents annually purchase a Montana fishing license of some type. During the 1975-76 season total angling pressure was 3,105,000 man days. License sales have been increasing at an average annual rate of 3.25 percent since 1970 and are expected to increase at a comparable rate through 1982.

In 1975 there were five commercial fishermen authorized to fish in designated waters. Eighteen bait dealers were also authorized to harvest bait fish from certain waters.

Interest in nonconsumptive uses of aquatic resources appears to be increasing, but no data are available.

Nonresidents accounted for 16 percent (508,000 man days) of total statewide fishing pressure in 1975-76. Seventeen waters accounted for over half of the total use by nonresidents during that year. Nine of these seventeen waters are in close proximity to direct route to Yellowstone and Glacier National Parks.

The Fish Program includes all activities related to the management of aquatic organisms that provide recreational fishing or other beneficial uses in waters of the state. The major effort is directed toward game species with attention also given to nongame fish that are indicators of environmental conditions, fished commercially or utilized for some form of beneficial use.

It is generally believed that Montana has a supply of recreational fishing well in excess of the current use levels. However, this is not necessarily the case. Major portions of the total supply receive limited use while other portions are heavily used. A fishing license is not specific to any species nor water type so the licensing process has no influence on distribution of fishing pressure. Use levels are determined by custom, angler preference, availability of waters, fishing quality, time-distance factors and other social considerations not clearly understood.

Trout fishing in streams is a highly desired element of the fishery, and those waters receive a disproportionate share of total stream pressure. The pressure among trout streams is also unevenly distributed. Mountain whitefish are abundant but lightly utilized in many of the more popular streams where the trout species are heavily used.

Fishing regulations have been general in nature and quite liberal in the past. Some, but not all, of the problems of disproportionate utilization can be resolved with regulations based on conditions and needs of individual waters.

This Program includes three categories: Game Fish in Streams, Game Fish in Lakes, and Nongame Fish. The Stream category is subdivided into elements of Trout, Other Salmonids, Paddlefish and Other Nonsalmonids. The Lake category includes Trout and Kokanee, Other Salmonids and Nonsalmonids. Game fish were considered to be all species utilized in the recreational fishery rather than those classified as game fish in Montana statutes. The yellow perch, for example, is not legally classed as a game fish, but it is an important fish in the recreational fishery. The Nongame category is separated into Commercial Fishing and Other which includes amphibians, invertebrates and any fish not included in the Game Fish categories.

The following terms as defined are used in the Fish Program segment of this plan.

GOAL: A general statement indicating the philosophy and purpose of a program.

OBJECTIVE: A specific statement indicating the quantity of resources and/or products that the Department intends to influence in a specified time period.

SUPPLY: The estimated quantity of harvestable fish that can be harvested under existing management expressed in man days of recreational fishing; the miles of streams or acres of lakes that currently support fishable populations; the quantity of habitat and/or aquatic animals available for any beneficial use.

DEMAND: The level of utilization that has taken place in the past or is expected to occur in the future under existing management. It is expressed in man days of recreation or in the quantity of animals required to support a need.

MAN DAY: One fisherman or other recreationist using the resource for some portion of a 24 hour day.

PROBLEM: Any condition, situation or management practice that adversely affects a segment of the aquatic resource.

STRATEGY: Any proposal that reduces or eliminates the adverse influence of a problem.

\* \* \* \* \*

FISH PROGRAM GOAL:

To ensure the perpetuation of all aquatic species and their ecosystems and to meet the public demand for fish in state waters.



## FISH PROGRAM

GENERAL PROBLEMS

Aquatic habitat is being altered and degraded at an increasing rate.

Water diversion from rivers for industrial, agricultural and domestic purposes is increasing.

Many of the prime fishing waters are located on private land. The availability of these waters is decreasing each year as policy or ownership changes.

Fishing pressure by both residents and nonresidents is increasing while the supply remains constant or possibly declines. Fishing pressure is not distributed in proportion to the supply and can not be directly diverted to the waters or species with the largest potential to absorb increasing pressure.

Angler use is determined by personal preference, angling success, convenience, location and custom rather than by biological production of waters.

Information needed for proper management or resource protection is lacking in many areas and for many species.

Public understanding of the consequences of many land and water uses is often less than adequate.

The Department of Fish and Game is responsible for the management of the fishery resource that is on lands managed by other agencies or individual owners.

License fee revenues have not kept up with increased operating costs in recent years. The last license increase was earmarked for land acquisition. Therefore, development and maintenance costs on these lands must be paid out of other revenues. This reduces total funds for other fishery related activities.

The Fish Program is not self-sufficient, and, therefore, it becomes progressively more difficult to fund new projects.

ACTIONS NEEDEDDepartment

Fill data gaps regarding status, life history requirements and utilization of fishery resources.  
Identify and evaluate public opinion regarding fishery values.  
Reassess programs, projects and goals.  
Improve inventory of fishery habitat and classification.

Other Government Agencies

Greater consideration for long-range impacts of development and land use on basic resources.

Legislature

Funding authority from General Fund for general recreation activities.  
Adjust fishing license structure and fees.  
Full recognition of the beneficial use of water to support aquatic resources and recreational use.

Public

Improve image and status of recreationists on both public and private land.

FISHERIES ADMINISTRATIVE REGIONS

Status

This category includes four elements: Trout in Streams, Other Salmonids in Streams, Paddlefish in Streams and Other Nonsalmonids in Streams. The recreational use of game fish species in streams takes place largely on about 14,500 stream miles. An undetermined number of additional miles are extremely important to the fishery. Although these additional stream miles support relatively few catchable-sized fish, they are extremely important to the total resource through their affect on watershed conditions, water quality, and as spawning or nursery areas for game fish. The total length of these additional streams is estimated to exceed the 14,500 miles that support recreational fishing.

The stream fishery for salmonids is located mostly in the Columbia drainage, in the Missouri drainage above Great Falls and in the Yellowstone drainage above Billings, with some stream fishing for trout also available in streams in northeast Montana and in the Tongue River near Miles City. This fishery is supported by six species of trout, kokanee, arctic grayling and mountain whitefish.

The nonsalmonid stream fishery is mostly below Great Falls and Billings in the Missouri and Yellowstone drainages. Burbot (ling) also occur in streams in Regions One and Three and northern pike populations have become established in a few streams in Region One. Major species in the stream fishery for nonsalmonids are paddlefish, sauger, walleye, northern pike, largemouth bass, smallmouth bass, sturgeon, channel catfish and burbot.

During 1975-76 streams received 51 percent of all fishing pressure generated by the license buyers. In 1968, 55 percent of the statewide pressure was on streams.

Degradation of stream habitat has a major influence upon the ecosystems that support all species of fish. Favorable legislation has placed some constraints on land and water uses that adversely affect fishery resources but this will only help to maintain existing supplies rather than increase future supply.

The past management of trout streams included put-and-take plants of hatchery trout in many of the prime trout fishing waters. Recent studies have shown that large plants of fish in streams substantially reduced the wild trout population. Consequently, management policies were revised to place more emphasis on wild trout populations. Limited plants of hatchery trout are made in some streams that do not support wild populations or that support only limited wild populations. Stream management of nonsalmonids is also based on wild populations.

Problems

The demand for diversions from major streams for agricultural, industrial and domestic uses is increasing.

Information regarding the impact of other water uses on aquatic populations is lacking.

Proposed developments for mining, energy and subdivisions threaten habitat on major streams throughout the State.

Large amounts of the stream fisheries are bordered by private land where ingress rights are not ensured. There is a progressive increase in the posting of private land and the difficulty that anglers experience in getting to important fishing waters.

Navigability and ingress rights have not been determined for most streams. Existing laws require a separate legal decision for each stream rather than a class action for several streams.

Unstable stream channels caused by intensive land use and abuse result in a continual loss of aquatic and floodplain habitat.

The cost of stream preservation activities are supported by traditional fish and game funding sources although other segments of society also benefit.



## STRATEGIC PLAN: TROUT IN STREAMS STATEWIDE

143

Supply and Demand

The various species of trout occur in numbers large enough to support recreational fishing in 12,000 miles of Montana streams. The total supply of fishing in these waters is 1,649,000 man days under current standards and regulations. Thirty-one percent of this fishery is located on public land, 51 percent on private land that is currently available to public fishing and 18 percent on private land where public use is restricted or prohibited. The larger trout are generally in the lower reaches of streams where private land is predominate so current use is proportionately higher on those waters.

Current use of this element by anglers is 1,280,000 man days plus an undetermined amount of nonconsumptive use. Restrictive regulations on selected waters in some regions will increase supply when the need occurs. Supply will generally decline during the period because of habitat deterioration.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	1,649,000	1,641,800	1,749,700	1,742,300	1,728,700	1,715,300	1,698,700	1,634,300
Demand	1,308,800	1,343,700	1,376,800	1,410,800	1,444,200	1,485,300	1,649,800	1,846,700

GOAL:

To ensure the perpetuation of these species and the stream environments that support them and to meet future public demand for these species in streams.

6-YEAR OBJECTIVE:

To preserve or enhance the 12,000 miles of streams that support wild trout. To manage wild trout populations in streams to support an annual use of approximately 1,485,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of intensive land use.

Diversions for industrial, agricultural and domestic purposes are progressively more in demand.

Disproportional use on popular waters. Some waters will be heavily fished before 1981-82.

STRATEGIES

Give high priority to additional funding for work under the Stream Preservation Act, Natural Streambed and Land Preservation Act and flow reservations. Continue aggressive information and education program regarding watershed, floodplain and streambank management. Utilize Sikes Act projects to monitor habitat stability and habitat improvement measures. Promote legislation that would require the input of fishery interests in all major actions that affect fishery resources.

Continue work on flow reservations and effect of flow reduction on aquatic resources.

Implement special regulations as needed on individual waters. Use combination of I & E and regulations to divert fishermen to less-fished waters, i.e. nonsalmonid streams.

(continued)

PROBLEMS

Much of the more desirable fisheries are on private land where ingress restrictions are increasing.

Information on standing crop population dynamics and exploitation rates is lacking on most waters.

Navigability and ingress rights have not been established on most of the important streams.

Distribution of supply is not related to public requests for recreational fishing. Therefore, we are pressured to increase supply locally although regional or statewide supply may be high.

The cost of stream preservation activities are supported by traditional fish and game funding sources although other segments of society also benefit.

Stream habitat is threatened by proposed exploration and development associated with energy sources.

Proposed dam construction will alter stream environment and possibly interrupt migratory spawning runs.

Flood irrigation methods involve high losses between diversion and the irrigated crops. This practice also contributes to siltation and chemical pollution of streams.

STRATEGIES

Continue fisherman access acquisition program with emphasis on relative use by anglers.

Manage waters where information is lacking similar to the waters in need of special regulations. Continue to systematically gather baseline information. Devise innovative, time-saving sampling methods. Define critical habitats.

Promote legislation that would redefine navigability on the basis of a water capacity to support recreational use rather than past commercial use. Promote legislation that allows legal action on groups of waters rather than on individual streams. Evaluate and attempt to minimize the impacts of navigability on private landowners.

Continue efforts to redistribute supply and/or use. Establish policies regarding the availability of recreational fishing to license buyers.

Request public funding for a portion of these activities.

Expand work on minimum flow requirements for aquatic organisms and effect of reductions on those resources. Request funding from developers to acquire baseline data on physical, chemical and biological characteristics of threatened waters.

Negotiate with water resource developers for funding to study impacts of proposals on stream environments and to develop plans to protect or replace the fishery in kind.

Encourage the Department of Natural Resources and other agencies to improve irrigation methods through the use of more efficient and effective methods such as sprinkler systems.

## STRATEGIC PLAN: TROUT IN STREAMS REGION 1

Supply and Demand

Region One has identified 6,510 miles of streams of importance to the trout fishery. This includes 3,800 miles of small streams that maintain water quality and provide spawning-nursery areas for migratory species that reside in the larger streams, and 2,710 miles that support fishable populations of trout that can support 262,400 man days of recreational fishing at current standards and management.

One half of this fishery is on public land with 31 percent on private land open to public use and the remaining 19 percent on private land where public use is restricted or prohibited. The streams on private land support most of the larger trout so pressure is proportionately higher on those streams.

The supply of this element will increase from 1977 to 1980 due to some stream restoration projects and will decline thereafter because of overall habitat deterioration. Angling pressure on trout in streams was 180,700 man days in 1975-76 and is expected to reach 209,900 man days by 1981-82.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	262,400	266,600	270,800	275,000	273,500	272,000	267,500	260,000
Demand	185,400	191,100	194,800	199,500	204,200	209,900	232,700	260,700

## 6-YEAR OBJECTIVE:

To preserve or enhance the 2,710 miles of streams that support wild trout and those additional miles of tributaries that influence the fishery. To manage wild trout populations in streams to support an annual use of approximately 209,900 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic, or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of timber harvest and associated activities.

Stream habitat is deteriorating as a result of agricultural activities in the drainages.

Stream habitat is deteriorating as a result of subdivision development.

Stream habitat is threatened by proposed energy development, mining, and oil exploration.

STRATEGIES

Provide additional funding for work under the Stream Preservation Act, Natural Streambed and Land Preservation Act and minimum flow requirements.

Promote legislation that would require the input of fishery interests in all major actions that affect fishery resources.

Continue work on flow reservation in streams.

Enforce existing laws regarding pollution and stream alteration.

Request funding from UJC for stream inventory of affected streams.

Continue 208 N.F. water quality study for two more years.

(continued)

PROBLEMS

Private landowners control ingress to portions of many of the more productive streams. Changes in policy regarding public use would limit availability of important waters.

Angler use is not distributed in relation to supply.

Navigability and ingress rights have not been established for most streams.

Information on standing crop and exploitation rates is lacking on most waters.

The importance of the many small tributaries in a drainage is often overlooked in land use plans and practices.

STRATEGIES

Continue fisherman access program with emphasis on relative use by anglers.

Implement special regulations as needed on individual waters.

Promote legislation that would redefine navigability on the basis of a water's capacity to support recreational use rather than past commercial use.

Expand efforts to monitor fish populations and to fill data gaps.

Expand laws and regulations to include protection for intermittent streams that influence water quality and fish populations in perennial streams.



## STRATEGIC PLAN: TROUT IN STREAMS REGION 2

147

Supply and Demand

Region Two has 1,490 miles of trout streams that are capable of providing 305,000 days of recreational fishing at current standards under existing regulations. Twenty-nine percent of this fishery is on public land, 49 percent is on private land that is open to public use and 22 percent is on private land where ingress is restricted or prohibited. The fishery on private land includes many of the streams that produce the larger trout. These fish are more desirable to anglers so use is proportionately higher on these waters. Five streams support 50 percent of the regional annual pressure on trout streams.

Restrictive regulations on selected waters will increase the supply in 1978-79. Total supply will decline throughout the planning period because of habitat deterioration. Angling pressure on trout in streams was 247,200 man days in 1975-76 and it is expected to reach 286,900 man days by 1981-82.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	305,000	302,000	333,000	330,000	326,500	323,100	310,200	294,700
Demand	253,600	260,000	266,400	272,800	279,000	286,900	318,000	356,300

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 1,490 miles of streams that support wild trout. To manage wild trout populations in streams to support an annual use of approximately 287,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of agricultural activities in the drainages.

Stream habitat is deteriorating as a result of logging and associated activities.

Stream habitat is deteriorating as a result of subdivision development.

Private landowners control ingress to most of the more productive streams. Change in policy or deterioration of landowner-angler relationship will reduce availability.

Angler use is not distributed in relation to supply.

Information on standing crop and exploitation rates is lacking on most waters.

Navigability and ingress rights have not been established for most streams.

Proposed dam construction will alter stream environment and possibly interrupt migratory spawning runs.  
Mining exploration and potential development could threaten stream environments.

STRATEGIES

Continue communications with agricultural, forestry, mining and residential development interests to improve land-use practices. Continue to provide recommendations for stream protection to those who apply for permits to alter stream habitat. Continue emphasis on activities related to Stream Preservation Act and Natural Streambed and Land Preservation Act. Promote legislation that would require the input of fishery interests in all major actions that affect fishery resources.

Continue fishing access program with emphasis on relative use by anglers.

Implement special regulations as needed on individual waters. I & E programs to encourage more use on less-used waters.

Expand efforts to monitor fish populations, devise innovative time-saving sampling methods. Define specific fish habitats.

Promote legislation that would redefine navigability on the basis of a water's capacity to support recreational use rather than past commercial use.

Negotiate with water resource developers for funding to study impacts of proposals on stream environments.

Expand data base on existing stream environments in potential impact areas.

Supply and Demand

Region Three has 3,400 miles of trout streams that are capable of supporting 544,000 man days of recreational fishing at current standards and existing regulations. Thirty percent of this fishery is on public land, 62 percent is on private land that is currently open to public use and 8 percent is on private land where ingress is restricted or prohibited. The streams on private land are generally the more productive streams and, therefore, receive the greatest angler use. Five streams in this region account for 50 percent of the annual regional pressure on trout streams.

Restrictive regulations on selected waters in 1978-79 will increase supply. Total supply will decline through the period because of habitat deterioration. Angling pressure on trout in streams was 445,600 man days in 1975-76 and is expected to reach 517,000 man days by 1981-82.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	550,000	544,000	620,200	614,000	607,900	601,800	583,000	554,000
Demand	457,100	468,600	480,100	491,600	503,100	517,000	573,300	642,100

6-YEAR OBJECTIVE:

To preserve or enhance the 3,400 miles of streams that support wild trout. To manage wild trout populations in streams to support an annual use of approximately 517,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of agricultural activities in the drainages.

Stream habitat is deteriorating as a result of logging and associated activities.

Stream habitat is deteriorating as a result of subdivision development. Stream habitat is threatened by proposed energy development and mining.

Private landowners control ingress to many of the more productive streams. Changes in policy regarding public use would limit availability of important waters.

Angler use is not distributed in relation to supply.

Navigability and ingress rights have not been established for most streams.

Information on standing crop and exploitation rates is lacking on most waters.

Portions of the Madison River are subject to thermal pollution and low flows.

STRATEGIES

Increase funding for work under the Stream Preservation Act, Natural Streambed and Land Preservation Act and minimum flow requirements for aquatic organisms. Continue working toward the establishment of minimum flows in streams. Conduct aggressive I & E program regarding watershed floodplain and streambank management.

Continue fisherman access acquisition program with emphasis on relative use by anglers.

Specify regulations on individual waters as needed. I & E programs to stimulate greater use on the least-used waters.

Promote legislation that would redefine navigability based on the water's capacity to support recreation rather than past commercial use.

Expand efforts to monitor fish populations. Devise innovative time-saving sampling methods. Define specific fish habitats.

Negotiate with Montana Power Company for measures that would reduce adverse effects of Ennis Reservoir and Hebgen Reservoir.

Supply and Demand

Region Four has 3,100 miles of trout streams that are capable of supporting 290,000 man days of recreational fishing at current standards and under existing regulations. Twenty-six percent of this fishery is on public land, 54 percent on private land where public ingress is permitted and 20 percent on private land where ingress is restricted or prohibited. The streams on private land are the more productive waters, and, therefore, receive much of the angling pressure. One stream, the Missouri River, accounts for one half of all the annual regional fishing pressure on trout streams.

Restrictive regulations on selected waters will increase supply in 1984-85. Total supply will decline during the planning period because of habitat deterioration. Angler use on trout in streams was 227,200 man days in 1975-76 and is expected to reach 263,500 by 1981-82.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	290,000	288,600	287,100	285,700	284,200	282,800	306,400	300,000
Demand	233,200	239,000	245,000	251,000	256,500	263,500	292,400	327,400

6-YEAR OBJECTIVE:

To preserve or enhance the 3,100 miles of streams that support wild trout. To manage wild trout populations in streams to support an annual use of approximately 264,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of agricultural activities in the drainages.

Stream habitat is deteriorating as a result of logging and associated activities.

Stream habitat is deteriorating as a result of subdivision development.

Private landowners control ingress to many of the more productive streams. Changes in policy regarding public use would limit availability of important waters.

Angler use is not distributed in relation to supply.

Navigability and ingress rights have not been established for most streams.

Information on standing crop and exploitation rates is lacking on most waters.

Dewatering for agricultural purposes is a major factor in many streams.

Restrictions on public use of waters on Indian Reservations.

STRATEGIES

Provide additional funding for work under the Stream Preservation Act and Natural Streambed and Land Preservation Act. Conduct aggressive I & E program regarding watershed, floodplain and streambank management. Continue communications with private individuals and groups to increase consideration for fishery values in land-use decisions. Promote legislation that would require the input of fishery interests in all major actions that affect fishery resources.

Continue working with private sector for purchase of land or easements for recreation use with emphasis on relative use by fishermen.

Implement special regulations as needed on individual waters. I & E programs that will encourage greater use on less-used waters.

Promote legislation that would redefine navigability on the basis of a water's capacity to support recreation rather than past commercial use.

Expand efforts to monitor fish populations. Devise innovative time-saving sampling methods.

Continue efforts to determine the effect of flow reductions and to establish minimum flows needed to maintain aquatic populations.

Negotiate with tribal councils for recreational use by non-Indians on tribal lands.

Supply and Demand

Region Five has 1,350 miles of trout streams that are capable of supporting 218,000 man days of recreational fishing at current standards under existing regulations. Eighteen percent of this fishery is on public land, 47 percent is on private land where ingress for angling is permitted and the remaining 35 percent is on private land where angler use is restricted or prohibited. The more productive and popular streams are on private land so they receive a disproportionate share of the use by fishermen. Four streams account for over half of the annual regional use on trout streams. The supply will decline throughout the planning period because of habitat deterioration.

Angler use on trout in streams was 155,700 man days in 1975-76 and it is expected to reach 186,000 man days by 1981-82.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	219,000	218,000	216,000	215,000	214,000	213,000	209,000	203,000
Demand	160,600	165,500	170,400	175,200	180,000	186,000	209,000	233,000

6-YEAR OBJECTIVE:

To preserve or enhance the 1,350 miles of streams that support wild trout. To manage wild trout populations in streams to support an annual use of approximately 186,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of agricultural activities in the drainages.  
Stream habitat is deteriorating as a result of logging and associated activities.

Stream habitat is deteriorating as a result of subdivision development.  
Stream habitat is threatened by proposed energy development and mining.

Private landowners control ingress to many of the more productive streams. Changes in policy regarding public use would limit availability of important waters. A recent court decision prohibits recreational use on the Big Horn by non-Indians.

Angler use is not distributed in relation to supply.

Navigability and ingress rights have not been established for most streams.

Information on standing crop and exploitation rates is lacking on most waters.

STRATEGIES

Provide additional funding for work under the Stream Preservation Act, Natural Streambed and Land Preservation Act and minimum flow requirements. Support legislation to allow acquired water rights to be used for instream flows. Continue aggressive I & E program regarding watershed, floodplain and streambank management.

Continue access acquisition program based on related use by anglers. Continue to work with tribal councils to negotiate for recreational use on tribal lands.

Evaluate utilization of existing stocks and strive for better distribution of fishing pressure.

Promote legislation that would redefine navigability on the basis of a water's capacity to support recreation rather than past commercial use.

Expand efforts to monitor fish populations and habitat needs of aquatic organisms.

## STRATEGIC PLAN: TROUT IN STREAMS REGION 6

Supply and Demand

Region SIX has 180 miles of trout streams that are capable of supporting 22,000 man days of recreational fishing at current standards and under existing regulations. Four percent of this fishery is on public land, 71 percent is on private land where public use for angling is permitted and the remaining 25 percent is on private land where angler use is restricted or prohibited. Two trout streams support 78 percent of the Region's annual pressure on all trout streams.

Angler use on trout in streams was 17,700 man days in 1975-76 and is expected to reach 21,400 man days by 1982.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000
Demand	18,300	18,900	19,500	20,100	20,800	21,400	23,800	26,600

6-YEAR OBJECTIVES:

To preserve or enhance the habitat in 180 miles of streams that support these species. To manage wild trout populations in streams to support an annual use of approximately 21,400 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of agricultural activities in the drainages.

Private owners control ingress rights on most of these streams. Changes in owners' policy or deterioration of landowner-angler relationships will reduce availability.

Angler use is not distributed in relation to supply.

Information on standing crop and exploitation rates is lacking on most waters.

STRATEGIES

Conduct aggressive I & E program regarding watershed, floodplain and streambank management. Work for legislation requiring fishery input into projects affecting aquatic habitat.

Continue efforts to improve sportmen-landowner relationship. Acquire access or easements in key areas based on relative use by fishermen.

Encourage utilization of less available waters on private land.

Expand efforts to monitor fish populations and habitat needs.

Supply and Demand

The trout stream fishery in Region Seven is limited to a ten-mile stretch of the Tongue River that is managed for a put-and-take fishery with hatchery-reared rainbow trout. The stream is primarily a non-salmonid stream so the trout fishery is a supplement to the main fishery for non-salmonid species. Six hundred man days (5 percent of the total pressure on this stream) is supported by the trout management program. The fishery is self-limiting at the present time and there is no intention to expend the fishery during the planning period.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u> (man days)	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	600	600	600	600	600	600	600	600
Demand	600	600	600	600	600	600	600	600

6-YEAR  
OBJECTIVE:

To annually provide 600 man days of recreational fishing for hatchery-reared rainbow trout as a supplement to the fishery for non-salmonid species provided by this stream and to preserve or enhance the habitat in this portion of the Tongue River.

PROBLEMS

Increased industrial demands for water include a proposed dam that would inundate the stream section that supports trout fishery.

Industrial development may increase human population with a resulting increase in the need for additional recreational opportunity.

STRATEGIES

Identify the habitat necessary to maintain this trout fishery and take necessary steps to preserve the fishery. Identify instream flow needed to preserve or replace this fishery.

Adopt policies regarding expansion of the salmonid fishery in eastern Montana. Monitor fishing pressure on all fisheries.

Supply and Demand

This element includes two native species (mountain whitefish and arctic grayling) and one introduced species (kokanee). The whitefish is widely distributed in the large rivers and the major tributaries of the Columbia River drainage, the Missouri River drainage above Great Falls and the Yellowstone drainage above Billings. They are abundant in approximately 3,600 miles of stream and also occur in lesser numbers in an undetermined number of stream miles. The arctic grayling occurs in limited abundance in 20 streams and is common in two streams.

Utilization of kokanee in streams is as a snag fishery on migrating spawners. The major fishery is in the Flathead and Whitefish Rivers above Flathead Lake with some snagging also available in the Clearwater drainage and in tributaries of Georgetown Lake, Helena Valley Regulating Reservoir, Pishkin Reservoir and Sycum Reservoir.

Utilization of the mountain whitefish is low and is expected to remain well below the supply by 1982. Angler use of the grayling populations is low and is usually incidental to trout fishing. The use on the salmon fishery on the Flathead and Whitefish Rivers is increasing each year while snagging occurs generally on an opportunistic basis in the other five areas.

Projected Supply and Demand Data

	76-77	77-78	78-79	79-80	80-81	81-82	1985	1990
	(man days)							
<u>Supply</u>								
Grayling*								
Kokanee <sup>1</sup>	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000
Whitefish	722,000	722,000	722,000	722,000	722,000	722,000	722,000	722,000
<u>Demand</u>								
Grayling*								
Kokanee <sup>1</sup>	20,500	21,000	21,600	22,100	22,600	23,200	25,800	28,900
Whitefish	126,700	128,700	131,800	134,700	137,600	141,600	156,800	175,600

\*Undetermined

<sup>1</sup>Plus an undetermined amount on lightly used areas

GOAL:	To ensure the perpetuation of these species and the stream environments that support them and to meet future demand for these species in streams.
6-YEAR OBJECTIVE:	To preserve or enhance the habitat in 3,600 miles of streams that support whitefish, grayling or kokanee. To manage these species in streams to support an annual use of 164,800 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

The kokanee run in the Flathead is threatened by proposed mining and energy development in the upper drainage.

Mountain whitefish are abundant but utilization is light because angler interest in the species is low.

STRATEGIES

Request funding from developer to determine ways to eliminate or minimize damage to aquatic resources. Encourage legislation that requires fishery input on projects that threaten stream habitat.

Continue liberal regulations on whitefish as regulation on other species becomes more restrictive. Encourage utilization of whitefish through I & E efforts.

(continued)

PROBLEMS

There is an increasing demand for more diversions for industrial, agricultural and domestic purposes.

Stream habitat is deteriorating as a result of intensive land use in flood plains.

Grayling populations are declining but little specific information regarding status and habitat needs is available.

Proposed dam construction will alter stream environment and will interrupt spawning runs.

STRATEGIES

These species will benefit from Department efforts on flow reservations.

These species will benefit from stream preservation efforts on the Stream Preservation Act and the Natural Streambed and Land Preservation Act. Utilize Sikes Act projects to monitor habitat stability and habitat improvement measures for species of special concern.

Evaluate status of the grayling in those areas where data can be obtained.

Negotiate with developing agency for funding to determine impacts of proposed projects and to formulate mitigation.



Supply and Demand

The element includes all three species in Region One. Grayling are present in limited numbers in three streams and are lightly used by anglers. The kokanee run in the Flathead River is well-known and pressure is increasing annually. Whitefish are abundant and widely distributed in 1,200 miles of stream but lightly used by anglers. Forty-one percent of the whitefish fishery is on public land, 39 percent is on private land open to public fishing and the remaining 20 percent is on private land where ingress is restricted or prohibited.

The supply/demand relationship of the grayling fishery is not expected to change during the planning period. Current supply of kokanee snagging will meet the demand through 1990 if the run from Flathead Lake is maintained near current levels. The demand for whitefish is expected to remain well below the supply through 1990.

Projected Supply and Demand Data

	76-77	77-78	78-79	79-80	80-81	81-82	1985	1990
	(man days)							
<u>Supply</u>								
Grayling*								
Kokanee	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000
Whitefish	240,000	240,000	240,000	240,000	240,000	240,000	240,000	240,000
<u>Demand</u>								
Grayling*								
Kokanee	20,500	21,000	21,600	22,100	22,600	23,200	25,800	28,900
Whitefish	12,300	12,600	13,000	13,300	13,600	14,000	15,400	17,200

\*Undetermined

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 1,200 miles of streams that support whitefish, grayling or kokanee. To manage these species in streams to support an annual use of approximately 37,200 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Kokanee runs are threatened by proposed mining activities and energy development in the upper Flathead River drainage.

Angler interest is low in the large whitefish populations.

Stream habitat is deteriorating as a result of intensive land use in the flood plains.

Whitefish populations and angling opportunities are threatened by Libby Dam and Reservoir.

Dams are a threat to migratory species. The fisheries of Flathead Lake and tributaries would be adversely affected.

STRATEGIES

Request funding from developer to determine ways to eliminate or minimize damage to aquatic resources. Request funding for North Fork Study through IJC because the mine will be owned by Canadians.

Continue liberal regulations and encourage greater utilization of whitefish through I & E efforts.

These species will benefit from stream preservation efforts related to the Stream Preservation Act, the Natural Streambed and Land Preservation Act and flow reservations.

Develop recommendations that will minimize the effect of this water development on whitefish populations.

Oppose any additional dams where migratory fish are involved.

## OTHER SALMONIDS IN STREAMS - REGION 2

Supply and Demand

This element includes kokanee and whitefish in Region Two. Kokanee anadromy is available in the Clearwater drainage and in the tributaries of Georgetown Lake. The amount of use on kokanee in these areas is undetermined, but is a relatively small part of total stream pressure. Whitefish are common in 600 miles of streams that can support 120,000 man days of fishing for whitefish. Thirty-one percent of the whitefish fishery is on public land, 69 percent on private land that is open to public use and 22 percent on private land where public use is restricted or prohibited.

The supply demand relationship of the Kokanee fishery is expected to remain stable through 1981-82. It is expected that utilization of the whitefish fishery will remain well below existing supply through the planning period.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
					(man days)			
<u>Supply</u>								
Kokanee*								
Whitefish	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
<u>Demand</u>								
Kokanee*								
Whitefish	25,300	25,900	26,500	27,100	27,700	28,500	31,600	35,400
*Undetermined								

## 6-YEAR OBJECTIVE

To preserve or enhance the habitat in 650 miles of streams that support kokanee or whitefish. To manage kokanee and whitefish populations to support an annual use of 28,500 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Although whitefish are abundant, angler interest is low.

Stream habitat is deteriorating as a result of intensive use in flood plains.

STRATEGIES

Continue liberal regulations and encourage greater utilization through I & E efforts.

Continue aggressive I & E program regarding watershed, flood plain and streambank management. Cooperate with Sikes Act program to monitor and improve stream habitat. Encourage legislation that requires fishery input in all projects that affect aquatic habitat. Activities related to stream preservation for trout species will also benefit "other salmonids."

Supply and Demand

This element includes grayling and whitefish in Region Three. Grayling are present in limited abundance in 13 streams and is common in two streams. Angler use is undetermined but it is relatively light and is generally incidental to trout fishing.

Mountain whitefish are common in approximately 700 miles of streams and are present in lesser numbers in an undetermined number of additional miles. One-fourth of this fishery is on public land, 70 percent is on private land open to public use and the remaining 5 percent is on private land where ingress is restricted or prohibited.

The supply/demand relationship of the grayling fishery is not expected to change during the planning period. The demand for whitefish is expected to remain well below the total supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
<u>Supply</u>								
Grayling*								
Whitefish	138,000	138,000	138,000	138,000	138,000	138,000	138,000	138,000
<u>Demand</u>								
Grayling*								
Whitefish	45,600	46,700	47,800	48,900	50,000	51,400	57,000	63,900
*Undetermined								

\*Undetermined

6-YEAR OBJECTIVE

To preserve or enhance the habitat in 800 miles of streams that support grayling or whitefish. To manage grayling and whitefish populations for an annual use of 51,400 man days of recreational fishing limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of intensive land and water use in the flood plain.

Although whitefish are abundant, angler interest is low.

Information regarding the status and habitat requirements of the grayling are lacking.

STRATEGIES

These species and habitat types will benefit from stream preservation activities related to the Stream Preservation Act, Natural Streambed and Land Preservation Act and flow reservations.

Continue liberal regulations and encourage greater utilization of the species with I & E programs. Consider commercial harvest through sport fishing programs.

Obtain this information regarding the grayling in the upper Big Hole drainage.

## OTHER SALMONIDS IN STREAMS - REGION 4

Supply and Demand

This element includes kokanee and whitefish in Region Four. A seasonal snag fishery is available for kokanee at three sites in the Region. The fishery is quite consistent from year-to-year at all three sites.

Whitefish are common in approximately 600 miles of streams and are present in lesser numbers in an undetermined number of additional stream miles. Fifteen percent of this fishery is on public land, 25 percent on private land open to public use and the remaining 60 percent is on private land where ingress is limited to some degree.

The supply/demand relationships for the kokanee is not expected to change during the planning period. Utilization of the whitefish is not expected to approach supply by 1990.

Projected Supply and Demand Data

	76-77	77-78	78-79	79-80	80-81 (man days)	81-82	1985	1990
<u>Supply</u>								
Kokanee*								
Whitefish	122,000	122,000	122,000	122,000	122,000	122,000	122,000	122,000
<u>Demand</u>								
Kokanee*								
Whitefish	24,600	25,200	25,800	26,400	27,000	27,800	30,700	34,400

\*Undetermined

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 700 miles of streams that support kokanee or whitefish. To manage kokanee and whitefish populations for an annual use of 27,800 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of intensive land use in the flood plains.

Although whitefish are abundant, angler interest is low.

STRATEGIES

These species and habitat types will benefit from preservation efforts on the Stream Preservation Act and Natural Streambed and Land Preservation Act and flow reservations. Utilize Sikea Act projects to monitor and/or improve habitat for species of special concern.

Continue liberal regulations. Encourage greater utilization of this species through I & E programs. Consider legislation to permit commercial harvest on some waters.

Supply and Demand

This element includes grayling and whitefish in Region Five. Grayling are limited to a sparse population in one stream. Angler use is undetermined on this remnant population.

Whitefish are common in approximately 500 miles of streams in the region and are present in lesser numbers in an undetermined number of additional miles. Ten percent of this fishery is on public land, 70 percent on private land where public use is permitted and the remaining 20 percent is on private land where ingress is limited or prohibited.

Utilization of the whitefish fishery will remain well below the total supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
					(man days)			
<u>Supply</u>								
Grayling*								
Whitefish	102,000	102,000	102,000	102,000	102,000	102,000	102,000	102,000
<u>Demand</u>								
Grayling*								
Whitefish	17,900	18,300	18,700	19,000	19,300	20,000	22,100	24,700

\*Undetermined

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 600 miles of stream that support whitefish and grayling. To manage grayling and whitefish populations for an annual use of 20,000 man days of recreation fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stream habitat is deteriorating as a result of intensive land use in the flood plain.

Although whitefish are abundant, angler interest is low.

STRATEGIES

These species and habitat types will benefit from stream preservation efforts on the Stream Preservation Act, Natural Streambed and Land Preservation Act and flow requirements.

Continue liberal regulations. Encourage greater utilization of the species through I & E programs.



Supply and Demand

Paddlefish are present in numbers great enough to provide recreational fishing at three sites in the State. Fish from Garrison Reservoir in North Dakota make spawning runs into the Missouri and Yellowstone Rivers in Montana. Paddlefish from Fort Peck Reservoir run into the Missouri River above the reservoir. The major fisheries for this species occur at Intake Dam near Glendive and in the Missouri River near the Fred Robinson Bridge. Some fishing also takes place in the dredge cuts below Fort Peck Dam. A few have been taken in the Yellowstone near the mouth of the Tongue River.

This fishery is very localized and occurs mostly on public land. Utilization has varied in recent years with about 7,000 man days of use in 1975.

The average catch rate on paddlefish on the Yellowstone River is 1.5 fish per day and 45 percent of the fish taken are released. The Missouri River fishery averages .3 fish per day and 10 percent of the fish taken are released.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u> (man days)	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	10,000	12,500	13,500	13,500	13,500	13,500	13,500	13,500
Demand	7,100	7,400	7,600	7,800	8,000	8,200	9,200	10,300

GOAL:

To ensure the perpetuation of the paddlefish and the environments that support them and to meet the public demand for the species.

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in those streams that support paddlefish. To manage paddlefish populations to provide an annual use of 8,200 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Paddlefish populations are threatened in both the Yellowstone and Missouri Rivers by proposed water developments and/or diversions.

Temporal and spatial concentrations of fishermen.

Information regarding life history and habitat needs is incomplete, especially regarding spawning and rearing requirements. Information regarding sustained yield is also needed.

Species is long-lived and effects of possible over-harvest will be slow in appearing and even slower in recovery.

STRATEGIES

Continue to support free-flowing status of the Yellowstone and Missouri Rivers and to request minimum flows for fish, wildlife and recreation with emphasis on spawning requirements of paddlefish. Fort Peck regulating dam especially threatens this species.

Attempt to locate additional paddlefish concentrations of fishable numbers. Prepare for permit system to alleviate crowding.

Expand research efforts with emphasis on telemetry, evaluation of spawning requirements and population dynamics.

Continue with two fish daily limit and prepare for handling a tagging system for a season limit to be applied if necessary.

Supply and Demand

A spawning run of paddlefish from Fort Peck Reservoir into the Missouri River provides a fishery in approximately 10 miles of river near the Fred Robinson Bridge on highway 191. A bow-and-arrow fishery occurs in the dredge cut on paddlefish that run from Garrison Reservoir in North Dakota.

The fishery occurs entirely on public land. In 1976 approximately 3,000 man days of recreational fishing occurred at these two sites.

Contemplated changes in regulations for 1978-79 will increase the supply of paddlefish fishing. The expected demand can be met through 1990 if existing habitat conditions for the species can be maintained.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000
Demand	3,100	3,200	3,200	3,300	3,400	3,500	4,000	4,500

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in streams that support paddlefish. To manage paddlefish populations to provide an annual use of 3,500 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Paddlefish populations in the Missouri River are threatened by proposed construction for water development and diversions.

Information regarding life history and habitat needs is incomplete, especially regarding spawning and rearing.

Temporal and spatial concentrations of fishermen.

Species is long-lived and effects of possible over-harvest will be slow in appearing and even slower in recovery.

STRATEGIES

Oppose any projects or developments that would adversely affect known paddlefish spawning areas or migration routes. The reregulating reservoir below Fort Peck Reservoir is an example.

Expand research efforts to determine life history and habitat requirements of the species with special emphasis on spawning needs.

Locate and develop other areas where paddlefish might be harvested. Prepare for a permit system that would regulate numbers of anglers in crowded areas.

Continue with two fish daily limit and prepare for handling a tagging system for a season limit to be applied if necessary. Explore the possibilities of artificial propagation.



## PADDLEFISH IN STREAMS - REGION 7

163

Supply and Demand

The main fishery for paddlefish in Region Seven occurs at Intake Diversion Dam on the Yellowstone River. A few are also snagged near the mouth of the Tongue River. Fish have been observed in other reaches of the Yellowstone but additional fishable concentrations have not been identified.

The fishery at Intake is located on public land and the limited use at the mouth of the Tongue River is on private land that is open to public use. Approximately 4,000 man days of fishing occurred annually in recent years.

Regulations were changed in 1977 to reduce the daily limit from two to one fish per day. This change will permit more days of recreational fishing for the species. The demand for paddlefish fishing can be met through 1990 if existing habitat conditions for the species can be maintained.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u> (man days)	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	5,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Demand	4,100	4,200	4,400	4,500	4,600	4,700	5,200	5,800

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in streams that support the paddlefish. To manage paddlefish populations to provide an annual use of 4,700 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Industrial development of Yellowstone Basin water threatens natural flow regimens of the Yellowstone River and could alter reproductive success of the paddlefish.

Temporal and spatial concentrations of fishermen.

Information regarding life history and habitat needs is incomplete, especially regarding spawning and rearing requirements.

Species is long-lived and effects of possible over-harvest will be slow in appearing and even slower in recovery.

STRATEGIES

Identify the requirements of the paddlefish for spawning, rearing and migration. Oppose projects that threaten this species. Continue efforts to establish minimum stream flows necessary for this species.

Attempt to locate other concentration areas where recreational fishing could be developed.

Expand research activities, especially those regarding telemetry studies.

Continue to monitor the fishery and implement changes in regulations as necessary.



Supply and Demand

The stream fishery for non-salmonids include sauger, walleye, northern pike, large mouth bass, small mouth bass, ling, channel catfish, sturgeon and several species that are not legally classified as game fish. This fishery is located largely in the Yellowstone drainage below Billings and in the Missouri drainage below Great Falls. Burbot (ling) also occur in the upper Yellowstone River, in the headwaters of the Missouri and in the Kootenai drainage, but use by anglers is negligible, and no specific management measures are applied to this species. Northern pike and large mouth bass have been introduced into the Flathead River system. Bass distribution in this system is limited to backwater areas and the fishery for this species is marginal. The pike is expanding its range in some of the major tributaries of the Flathead River and is attracting the interest of anglers. The introduction of northern pike in this drainage is potentially harmful to other stream-dwelling species (native and exotic) but it is not feasible to eliminate them nor to prevent them from spreading to other waters.

Most of the supply of stream fishing for non-salmonids is in approximately 2,500 miles of stream. Ninety percent of this fishery is on private land where ingress for angling is permitted. Seven percent of the fishery is on private land with some restriction (mostly Indian reservations) and the remaining 3 percent is on public land.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	497,000	497,000	497,000	497,000	497,000	497,000	497,000	497,000
Demand	165,000	169,000	173,200	177,000	181,000	186,000	206,300	231,300

## GOAL:

To ensure the perpetuation of non-salmonid species and their environments and to meet the public demand for these species in streams.

## 6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 2500 miles of streams that support non-salmonid species. To manage non-salmonid populations in streams to provide approximately 186,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Diversions or other developments for proposed energy development on Yellowstone River and/or tributaries.  
Proposed developments on Missouri River above and below Fort Peck Reservoir.  
Effects of agriculture on water quality and quantity.

STRATEGIES

Oppose those projects that will adversely affect these species and their habitat. Continue to support minimum flow reservations for all important streams. Collect data needed to support recommendations. Continue aggressive I & E program regarding watershed, flood plain and streambank management. Enforce non-point discharge sources of pollutants, especially chemicals and silt.

(continued)

PROBLEMS

Unauthorized introductions of fish.

Proposed developments in Canada threaten the fish habitat in the Poplar River(R6) and Cabin Creek(R1).

The availability of nonsalmonid streams is often limited by a combination of land ownership and a lack of roads.

Data regarding the status and habitat needs of stream-dwelling nonsalmonids is incomplete.

Distribution of supply is not related to public requests for recreational fishing. Therefore, the department is pressured to increase supply locally although regional or statewide supply may be high.

STRATEGIES

Enforce existing laws regarding the introduction of exotic fish, especially the grass carp. Offer rewards for reports leading to convictions.

Negotiate with IJC for protection of aquatic resources in state waters and request cooperative funding for necessary surveys. Improve data bank to support requests and recommendations.

Acquire or develop access areas or roads as the need arises.

Increase funding and effort on survey projects involving these species.

Continue efforts to redistribute supply and/or use. Establish policies regarding the availability of recreational fishing to license buyers.

Supply and Demand

The stream fishery for non-salmonid species in Region Four occurs largely in 475 stream miles. All of this fishery is located on private land where public ingress is generally unrestricted. Physical access is limited by a paucity of roads leading to portions of this fishery.

Current use is 28,300 man days of recreational fishing. Angler use on this fishery is increasing but it is expected to be less than the supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	95,000	95,000	95,000	95,000	95,000	95,000	95,000	95,000
Demand	29,000	29,700	30,500	31,200	31,900	32,800	36,300	40,700

## 6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 475 miles of streams that support nonsalmonid species. To manage nonsalmonid populations in streams to provide an annual use of 32,800 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Proposed developments on Missouri River above Fort Peck Reservoir.

Effects of agriculture on water quality and quantity.

Data regarding the status and habitat requirements of nonsalmonid stream-dwelling species is lacking.

Hatchery facilities are lacking for walleye, sauger, smallmouth and largemouth bass culture. Much available habitat is not managed for these species.

STRATEGIES

Oppose those projects that will adversely affect these species and their habitat.

Continue to support minimum flow concept on all important streams. Collect data needed to support recommendations. Continue I & E efforts regarding watershed, flood plain and streambank management. Enforce existing laws regarding non-point sources of pollutants.

Increase funding and effort on survey projects involving these species.

Develop facilities to fulfill demand for introductions of warm water species into new or rehabilitated waters.

Supply and Demand

The stream fishery for non-salmonids in Region Five occurs in 250 stream miles. All of this fishery is located on private land with 89 percent open to public fishing without restrictions by the landowners. Public use is permitted on the remaining 11 percent with some restrictions. The distribution of public roads precludes access to portions of the fishery.

Angler use on this fishery is increasing but it is expected to remain below the current supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Demand	28,000	28,800	29,400	30,100	30,800	31,600	35,000	39,300

## 6-YEAR OBJECTIVE:

To preserve or enhance the habitat in all streams that support nonsalmonid species. To manage nonsalmonid populations in streams to provide an annual use of 31,600 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Diversions or other developments for proposed energy development on Yellowstone River and/or tributaries would adversely affect aquatic resources.

Intensive agricultural land use has a detrimental effect on aquatic habitat.

Large segments of the nonsalmonid stream fishery are unavailable because of land ownership and/or a lack of roads.

STRATEGIES

Oppose those projects that will adversely affect these species and their habitat. Continue to support minimum flow reservations for all important streams. Provide additional funding for stream preservation activities under the Stream Preservation Act and Natural Streambed and Land Preservation Act. Enforce existing pollution laws.

Provide additional funds for stream preservation activities under the Stream Preservation Act and Natural Streambed and Land Preservation Act. Promote legislation to allow transfer of acquired water rights to instream flows. Identify non-point sources of pollution and encourage enforcement of pollution laws.

Acquire access areas and develop roads as needed based on relative use by anglers.

Supply and Demand

The stream fishery for non-salmonid species in Region Six occurs in 920 miles of streams. Eighty-two percent of this fishery is on private lands where public use is permitted without restrictions. An additional 10 percent is on Indian reservations where special fees are charged and the remaining 8 percent is on public land. A limited distribution of public roads precludes access to portions of this fishery.

Angler use is increasing, but it is expected to remain less than the supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply	184,000	184,000	184,000	184,000	184,000	184,000	184,000	184,000
Demand	35,700	36,500	37,400	38,200	39,100	40,200	44,600	50,000

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in all streams that support nonsalmonid species.  
To manage nonsalmonid populations in streams to provide an annual use of 40,200 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Proposed developments on Missouri River above and below Fort Peck Reservoir.

Effects of agriculture on water quality and quantity.

Proposed developments in Canada threaten the fish habitat in the Poplar River and Frechman Creek.

Proposed coal mining and associated transfer of water could degrade aquatic habitat.

A proposed transfer of water from the Marias and Missouri Rivers to the Milk River will aggravate channel erosion in the Milk at high flow levels. Increased irrigation will have secondary impacts through land use changes.

Proposed potash slurry extraction plants would degrade water quality and quantity in streams that are already subjected to low flows.

Many of the proposed developments are short-sighted approaches to economic problems rather than long-range approaches to basic resource problems.

Landownership and lack of roads limit use of a large portion of this fishery.

Nonsalmonid species are not utilized in relation to their abundance.

STRATEGIES

Oppose those projects that would degrade these species and/or their habitat.

Provide funds to monitor the impacts of agriculture on aquatic resources. Inform the public regarding the effect of land use on aquatic resources.

Work through IJC and local groups to achieve proper consideration for aquatic recreational values in project plans. Collect the data needed to support requests and recommendations.

Gather baseline data needed to protect and preserve resources.

Investigate alternate methods of construction and determine which method would have the least impact on fishery resource. Discourage development and irrigation of marginal lands.

Determine diversion/storage alternative that would have the least impact on fishery resources. Survey the streams that will be affected.

Inform the public through I & E programs of resource values and the irreversible effects of some developments.

Purchase access sites and develop roads based on relative use by anglers.

Encourage greater utilization through I & E efforts.

## OTHER NON-SALMONIDS IN STREAMS - REGION 7

Supply and Demand

The stream fishery for non-salmonid species in Region Seven occurs in 840 stream miles. All of this fishery is located on private land with ingress generally permitted with minimal restrictions. A limited distribution of public roads precludes access to portions of this fishery.

Angler use is increasing but it is expected to remain less than the current supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply	168,000	168,000	168,000	168,000	168,000	168,000	168,000	168,000
Demand	72,400	74,100	75,900	77,600	79,300	81,500	90,400	101,400

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in all streams that support nonsalmonid species. To manage nonsalmonid populations in streams to provide an annual use of 81,500 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Additional diversions are proposed for industrial and agricultural purposes from the Yellowstone River and tributaries.

Additional agricultural and industrial developments are a threat to the water quality of these streams.

Much of this fishery is not readily available because of limited road access and to some extent, because of landownership.

Proposed dam on the Tongue River is a threat to aquatic resources in the river.

STRATEGIES

Identify the flows needed to maintain the existing resource and take necessary actions to implement and protect those flows.

Monitor water quality of important waters and take actions necessary to preserve or enhance water quality.

Identify use levels by fishermen to determine heavy use areas. Acquire access or develop roads based on relative use by anglers.

Identify habitat requirements of the species involved and develop recommendations that would prevent or minimize damage to aquatic resources. Identify minimum flow requirements to maintain the fishery.



## GAME FISH IN LAKES

Status

This category is divided into three elements; Trout-Kokanee, Other Salmonids and Nonsalmonids. The waters that support these groups of species range in size from ponds and mountain lakes of less than 5 surface acres to Flathead Lake (125,000 A) and Fort Peck Reservoir (250,000 A). Earlier surveys have identified 3,400 individual lakes, reservoirs and ponds with fishery potential. Approximately two-thirds of these currently support fish populations large enough to provide recreational fishing and other beneficial uses.

Various combinations of trout or trout and kokanee occur in lakes in all seven Fish and Game administrative Regions. These populations include wild fish, those maintained with hatchery fish and combinations of both.

Other salmonids in lakes include the arctic grayling, mountain whitefish, the lake whitefish and the pygmy whitefish. Grayling are present in 50 lakes in that portion of the State west of a line through Billings and Great Falls. Utilization of the grayling is usually incidental to angling for trout but some fishermen do seek out the grayling. Mountain whitefish are common in many of the lakes of the Columbia drainage, the St. Marys drainage, the Missouri drainage above Great Falls, and the Yellowstone drainage above Billings. Angler interest is low in this species. The lake whitefish is present in ten lakes in the Flathead and St. Marys drainage and has been reported in Georgetown Lake in southwestern Montana, and in Nelson and Fresno Reservoirs in northeastern Montana. Angler interest is low in the lake whitefish. The distribution of pygmy whitefish is limited to a few waters in the northwestern part of the State.

The lake fishery for nonsalmonids is largely in the central and eastern parts of the State. Native ling populations occur in some lakes in western Montana and populations of nonsalmonids (yellow perch, largemouth bass, northern pike and sunfish) have been established in a few lakes in Regions One, Two and Three.

During 1975-76 lakes received 49 percent of the total statewide pressure. In 1968, 45 percent of the statewide pressure was on lakes. During the 1975-76 season, 85 percent of the lake pressure was on salmonid species and 15 percent on nonsalmonid fish.

Problems

Proposed developments threaten the recreational potential of some important lakes.

Current land uses degrade the fishery potential of some important lakes.

Competition occurs among various recreational users on some waters, especially near the larger population centers and in high use areas. Multiple recreational use is desirable but all forms are not compatible at high use levels.

Deteriorating water quality reduces the recreational potential of some important fishing lakes.

The availability of lakes to anglers is reduced each year through poaching and changing land use patterns.

The distribution of fishing opportunity is different from the distribution of human population. The capability and/or willingness of anglers to travel to the larger supply precludes optimum utilization of some segments of the resource.



## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES STATEWIDE

173

Supply and Demand

Trout and/or kokanee occur in numbers large enough to support recreational fishing in approximately 1,900 lakes, ponds and reservoirs throughout the state. These waters represent approximately 1,970,000 man days of recreational fishing under current standards and regulations.

Fifty-seven percent of this fishery is located on public land where public access is ensured. Waters representing 30 percent of the fishery are bordered by combinations of ownership that give incomplete ingress and the remaining 13 percent of the fishery is on private land.

Current angler use on these lakes is 1,307,200 man days. Angling pressure is expected to increase in proportion to anticipated license sales. Angler use is not distributed in relation to supply. Nine lakes account for one-half of the total statewide use on the trout-kokanee lakes.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	1,970,000	1,970,000	1,970,000	1,970,000	1,970,000	1,970,000	2,026,000	2,077,000
Demand	1,340,600	1,374,200	1,407,700	1,441,300	1,474,800	1,516,000	1,681,500	1,882,900

GOAL:	To ensure the perpetuation of these species and the lake environments that support them and to meet the public demand for trout and kokanee in lakes.
6-YEAR OBJECTIVE:	To preserve or enhance the habitat in 3,400 lakes, reservoirs and ponds that support trout or kokanee. To manage trout and kokanee populations in lakes to support an annual use of 1,516,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Lake habitat is deteriorating as a result of intensive land use and development along lakeshores.

Disproportionate use on popular waters. Some waters will be used to the maximum before 1982.

Proposed industrial developments threaten the fishery potential of some important lakes.

STRATEGIES

Continue to support regulation of lakeshore development to minimize the impact of aquatic resources. Discourage land uses that adversely affect fishery values.

Develop special regulations for heavily used waters or adjust management to redistribute pressure.

Continue efforts to prevent or minimize environmental damage to lakes by other land uses. Enforce existing laws and support additional legislation as needed.

(continued)

PROBLEMS

Restrictions on public use of fisheries on Indian Reservations.

Deterioration of spawning streams used by lake-dwelling salmonids.

Some large reservoirs are currently being managed with large plants of hatchery fish.

The angling public will not accept suitable waters left unmanaged even though regional supply or statewide supply is not fully utilized.

Unauthorized introductions of non-salmonids into salmonid waters.

Agricultural activities and power generation reduce fishery potential of some reservoirs.

Development of lakes for water storage with severe drawdown.

Many existing reservoirs have severe fluctuations that cause poor conditions for fish production. As the need for water increases the effect of fluctuations will increase.

Dams have blocked access to spawning areas for migratory species.

Lack of hatchery capabilities for some species limits management programs.

Loss of stream spawning facilities for lake populations as a result of timber harvest and associated problems; i.e. road construction and altered runoff patterns.

STRATEGIES

Negotiate with Tribal Councils for recreational use by non-Indians on tribal lands.

Continue efforts to prevent or minimize environmental damage to lakes. Efforts on the Stream Preservation Act and Natural Streambed and Land Preservation Act will help solve the problem of degradation of spawning streams.

Continue present management with hatchery fish but emphasize improvement of spawning facilities where feasible. Adjust license structure and fees to offset costs. Increase recreational potential through rehabilitation when the opportunity arises. Evaluate various strains of fish to maximize the opportunity to establish self-sustaining populations.

Continue efforts to redistribute supply and/or use. Develop policies regarding the availability of angling for license buyers.

Rehabilitation where feasible. New releases regarding results of these introductions.

Discourage those practices that are detrimental to fishery resources, i.e., overgrazing, brush removal or "breaking" of marginal land.

Include consideration of fishery resources in planning stage of storage projects.

Investigate individual projects to determine ways of minimizing or eliminating damage to the fishery within the needs of the operating group or agency.

Oppose any new projects that would further reduce spawning potential. Construct spawning channels.

Develop facilities and/or locate sources of brood fish for those species.

Continue to work with land managers in an effort to reduce impacts on aquatic environments.

## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES - REGION 1

175

Supply and Demand

Region One has 640 trout-kokanee lakes, ponds and reservoirs that are presently capable of supporting 767,000 man days of recreational fishing at current standards and regulations. Forty-five percent of this fishery is located on public land and an equal amount is bordered by some public land that provides incomplete ingress to the fishery. The remaining ten percent is bordered by private land with varying degrees of public use.

Current angler use on these lakes in Region One is 342,200 man days. This is expected to increase in proportion to anticipated license sales.

The expected demand will be less than supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	767,000	767,000	767,000	767,000	767,000	767,000	767,000	767,000
Demand	351,000	359,800	368,600	377,400	386,000	397,000	440,000	493,000

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 640 lakes, reservoirs and ponds that support trout or kokanee. To manage trout and kokanee populations in lakes to support an annual use of 397,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Proposed mining and energy developments in the Flathead drainage threaten habitat conditions for lake-dwelling species.

Proposed increases in power production from hydro-electric plants would adversely affect fish populations in reservoirs, tributaries and outlet streams.

Poor access to reservoirs during all seasons.

Unauthorized introductions of non-salmonid species into trout or kokanee lakes.

Dams have blocked access to spawning areas for migratory species.

Lack of hatchery capabilities for some species limits management programs.

STRATEGIES

Request funding from developing agency to evaluate the effect of the project and to develop alternate power or off-system storage and generating facilities. Negotiate with IJC for funding on international habitat problems.

Negotiate with agencies and/or companies to minimize the impacts of release patterns.

Develop the necessary facilities on a cooperative basis with the managing agency.

Discourage unauthorized introductions with enforcement and I & E efforts. Offer rewards for information regarding violators.

Oppose any new projects that would further reduce spawning potential for these species.

Develop facilities and/or locate sources of brood fish for those species.

(continued)

PROBLEMS

Loss of stream spawning facilities for lake populations as a result of timber harvest and associated problems; i.e. road construction and altered runoff patterns.

Current operation of Flathead lake levels has an adverse effect on kokanee spawning.

STRATEGIES

Continue to work with land managers in an effort to reduce impacts on aquatic environments.

Negotiate with Montana Power Company for operational plans that would improve current spawning conditions for kokanee. Negotiate with Corps of Engineers on operational plans as "flood storage" is a Corps responsibility.

## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES REGION 2

Supply and Demand

Trout and/or kokanee populations occur in numbers large enough to support recreational use in 170 lakes, ponds and reservoirs in Region 2. These waters are currently capable of supporting 200,000 man days of recreational fishing under existing management. Seventy percent of this fishery is located on public land where ingress is ensured. Waters representing 20 percent of the fishery are bordered by combinations of private and public land where ingress is incomplete and the remaining 10 percent is bordered by private land.

Current angler use on these lakes is 150,000 man days per year. Pressure is expected to increase in proportion to anticipated license sales. Georgetown Lake supports over half of the annual pressure exerted on trout-kokanee lakes in the region.

The expected demand for this element can be met until near the end of the planning period.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Demand	153,900	157,800	161,600	165,500	169,300	174,000	193,000	216,000

6-YEAR  
OBJECTIVE:

To preserve or enhance the habitat in 170 lakes, ponds and reservoirs that support trout or kokanee. To manage trout and kokanee populations in lakes, ponds and reservoirs to support an annual use of 174,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Pollution and eutrophication of Georgetown Lake.

Increasing demands for use of stored water resulting in greater fluctuations in reservoirs.

Lake shore developments for residential or other recreational uses.

STRATEGIES

Strict enforcement of existing pollution laws.

Negotiate for greater consideration of fishery values in water use planning.

Continue to support regulation of lakeshore development to minimize the impact on aquatic resources.

Supply and Demand

Region Three has 230 lakes, ponds and reservoirs that are capable of providing 401,000 man days of recreation fishing under current management. Eighty percent of this fishery is located on public land where ingress is ensured. Waters representing 18 percent of the fishery are bordered by combinations of public and private land where ingress is not ensured and the remaining 2 percent is located on private land.

Current angler use is 330,000 man days on this element and is expected to increase in proportion to anticipated license sales. Two waters, Canyon Ferry Reservoir and Hebgen Lake, account for over half of the regional pressure on trout lakes, ponds and reservoirs.

The current supply will meet anticipated needs for this type of fishing until 1984. The management of selected waters can be changed at that time to provide additional fishing opportunity that will satisfy the expected demand through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	401,000	401,000	401,000	401,000	401,000	401,000	425,000	476,000
Demand	338,500	347,000	355,500	364,000	372,400	382,800	424,600	475,500

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 230 lakes, reservoirs and ponds that support trout or kokanee. To manage trout and kokanee populations in lakes, ponds and reservoirs to support an annual use of 382,800 man days of recreational fishing by 1982 within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Deterioration of spawning conditions in streams used by lake-dwelling salmonids.

Decline of wild stocks from habitat changes and poor fish management practices.

Heavy use by nonresident anglers in the West Yellowstone area.

Development of lakes for water storage and drawdown; excessive and irregular drawdowns on existing reservoirs.

STRATEGIES

Identify problem streams and work with landowners or agencies to correct specific problems.

Change management to emphasize wild trout populations. Select and/or develop strains of fish suited to particular situations.

Determine use levels, success rates and total harvest at Hebgen and other heavily used waters as a basis for future management decisions.

Evaluate storage data for existing reservoirs to determine possible changes that could benefit the fishing resource. Negotiate for proper consideration of fishing values in new projects.



## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES REGION 4

Supply and Demand

Region Four has 120 lakes, ponds and reservoirs that currently support populations of trout and/or kokanee. These waters are capable of providing 375,000 man days of recreational fishing under current management.

Waters representing one-half of this fishery are entirely on public land where ingress is ensured. Twenty-two percent of the fishery is on lands including combinations of public and private lands with incomplete ingress rights. The remaining 28 percent is on private land.

Current angler use on these lakes, ponds and reservoirs is 319,800 man days. Pressure is expected to increase in proportion to anticipated license sales. Three waters account for one-half of the current regional use on this element.

The expected demand for this element can be met with current management until 1982. The management of selected waters can be changed at that time to provide additional fishing opportunity that will satisfy the expected demand through 1985.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply	375,000	375,000	375,000	375,000	375,000	375,000	412,000	412,000
Demand	328,000	336,200	344,400	352,600	360,900	371,000	411,500	460,800

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 120 lakes, ponds and reservoirs that support trout or kokanee. To manage trout and kokanee in lakes, ponds and reservoirs to provide an annual use of 371,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Severe and irregular drawdown on reservoirs.

Deterioration of spawning conditions in streams used by lake-dwelling salmonids.

Restrictions on public use of waters on Indian reservations.

Competition with other recreational users.

Disproportionate use on popular waters. Three waters currently support one-half of the regional lake use.

STRATEGIES

Evaluate storage data to determine changes that would benefit fishery resources. Negotiate with DNR for greater consideration of fishery values in reservoir operation.

Identify problem streams and work with landowners or agencies to correct specific problems. Implement stream improvement program to benefit spawning.

Negotiate with tribal councils for recreational use by non-Indians on tribal lands.

Evaluate conflicting uses and develop methods of allocating limited resources or recreational opportunities among all interests.

Develop management procedures that will divert pressure from heavily used waters to those that can support more use. Emphasize lightly-used waters in I & E programs.

## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES REGION 5

Supply and Demand

Region Five has 524 trout lakes, ponds and reservoirs, but no kokanee populations. Most of these are mountain lakes and only a few lowland lakes occur in the region. These trout waters are capable of supporting 126,500 man days of fishing under existing management. Sixty-five percent of this fishery is on public land where ingress is ensured. Waters representing 30 percent of the fishery are bordered by combinations of public and private land that do not provide complete ingress for angling. The remaining five percent is on private land.

Current fishing pressure on these waters is 106,800 man days. Use is expected to increase in proportion to anticipated license sales. Three waters receive half of the current regional pressure on trout lakes, ponds and reservoirs.

The expected demand for this type of fishery cannot be met in this region beyond 1982 under current management and conditions. The lowland lakes are currently managed to fully utilize the biological potential of the waters so additional supply cannot be made available through intensified management under present concepts.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u> (man days)	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	126,500	126,500	126,500	126,500	126,500	126,500	126,500	126,500
Demand	109,500	112,200	115,000	117,700	120,500	123,900	137,400	154,000

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 524 lakes, ponds and reservoirs that support trout or kokanee. To manage trout and kokanee populations in lakes, ponds and reservoirs to provide an annual use of 123,900 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Habitat conditions in lakes are threatened by proposed mining activities in the Stillwater and Beertooth areas.

Concentrations of fishermen on relatively small waters.

Competition among recreational users.

Other land uses adversely influence fish habitat in these waters.

Demands for non-recreational uses of water cause severe and irregular fluctuations that are detrimental to fishery values and recreational use. This problem will intensify as requests for water increase.

STRATEGIES

Request funding from developer for evaluation of existing resources and monitoring of the resource during construction and operation. Enforce existing laws regarding pollution and degradation of aquatic habitat.

Manage waters with fishery potential that are not currently managed. Encourage utilization of other fisheries through I & E efforts. Special regulations.

Special regulations and zoning to minimize conflicts.

Promote improved land management practices through I & E programs.

Secure water rights for fishing or recreational purposes. Evaluate individual projects to determine ways of minimizing damage to fishery resources.

Supply and Demand

Region Six has 88 lakes, ponds and reservoirs that support trout populations. Kokanee have been introduced in the past, but there are no established kokanee populations in the region at the present time. The trout fishery can support 62,800 man days of recreational fishing under current management. Fifty-five percent of the fishery is on public land and the remaining 45 percent is on private land.

Current fishing pressure on these waters is 51,000 man days. Use is expected to increase in proportion to anticipated license sales. Four reservoirs receive half of the current regional pressure on trout lakes, ponds and reservoirs.

Current supply will meet the demand for this fishery until the mid-1980's. The management of selected waters can be changed at that time to provide additional fishing opportunity that will meet the demand through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	62,800	62,800	62,800	62,800	62,800	62,800	62,800	62,800
Demand	52,200	53,500	54,800	56,100	57,500	59,000	65,600	73,400

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 88 lakes, ponds and reservoirs that support trout and kokanee. To manage trout populations in lakes, ponds and reservoirs to provide an annual use of 59,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Trout lakes in the Beaver Creek drainage are heavily used in relation to other trout lakes or ponds.

Winterkill and summerkill periodically reduce or eliminate populations in some waters.

Agricultural activities adversely affect the fishery value of many reservoirs.

High cost of catchable sized trout that are needed to manage certain waters.

Poor landowner-sportsmen relations cause land closures in some instances.

STRATEGIES

Develop and manage trout reservoirs on BLM land near population centers.

Investigate methods of anticipating kills and mitigating losses. Experiment with other species to determine most suitable species for problem waters.

Discourage "brekking" of marginal land for crop production. Promote good watershed management practices.

Increase license fees. Adopt a special stamp for waters managed with catchables to offset high cost.

Continue efforts to improve landowner-sportsmen relationships.

## STRATEGIC PLAN: TROUT AND KOKANEE IN LAKES REGION 7

Supply and Demand

Region Seven has 102 ponds and reservoirs that support trout populations that are maintained with hatchery fish. There are no kokanee populations in the Region. The trout fishery can support 33,000 man days of recreational fishing under current management practices. One-third of this fishery is on public land and two-thirds is on private land where public fishing is permitted.

Current annual fishing pressure on these ponds is 7,400 man days. Use is expected to increase in proportion to anticipated license sales.

The current supply of fishing opportunity on these lakes will meet the expected demand through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
					(man days)			
Supply	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000
Demand	7,500	7,700	7,800	8,000	8,100	8,300	9,200	10,400

6-YEAR OBJECTIVE

To preserve or enhance the habitat in 102 ponds and reservoirs that support trout. To manage trout populations in ponds to provide an annual use of 8,300 man days of recreational fishing within resource limitations and acceptable quality standards for scientific, aesthetic and other nonconsumptive uses

PROBLEMS

Many of the ponds are short-lived and do not provide fishing for long periods of time.

Many ponds are in remote locations and available by poor roads.

Ponds are usually managed primarily for a purpose other than fishing.

The Federal agency that provides fish for these ponds has indicated that revised priorities may limit fish for private ponds in the near future.

Poor landowner/sportsmen relations cause land closures in some instances.

STRATEGIES

Monitor pond conditions to maintain current data regarding fishery potential.

Emphasize the more readily available ponds in management and I & E efforts.

Establish management criteria and discontinue management of those that do not meet minimum requirements. Encourage good watershed management programs.

Monitor pond conditions to maintain data on current status of those on public land. Acquire permanent easement or access to high priority ponds near population centers. Emphasize pond management and construction on public lands.

Continue efforts to improve landowner/sportsmen relationships.

Supply and Demand

This element includes three species of whitefish and the arctic grayling. The mountain whitefish is common in many lakes and reservoirs in the western half of the state, but receive very little use by anglers. The lake whitefish occurs in 10 lakes in western Montana, but is seldom taken by anglers. The distribution of pygmy whitefish is limited to a few lakes in northwestern Montana. This fish is rarely taken by anglers, but it is an important item in the food of larger game species. Grayling are present in 50 lakes in the western half of the state and are utilized by anglers in these waters.

Utilization of all of these species in lakes by anglers is low and is expected to remain well below the supply through 1990. The demand for nonconsumptive uses of these species is undetermined.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply*								
Demand	12,300	12,700	12,900	13,300	13,600	13,800	16,500	17,500
*Undetermined								

## GOAL:

To ensure the perpetuation of the mountain whitefish, pygmy whitefish, lake whitefish and arctic grayling and the lake environments that support them and to meet the public demand for these species in lakes.

## 6-YEAR OBJECTIVE

To preserve or enhance the habitat in the lakes that support whitefish or grayling. To manage these species in lakes to provide an annual use of 13,800 man days of recreational fishing and for scientific, aesthetic and other nonconsumptive uses within resource limitations and acceptable quality standards.

PROBLEMS

Low angler interest in the whitefish.

Protection of spawning streams and lakeshore for lake populations.

These species are damaged by the same land uses and other factors that affect trout and kokanee populations in lakes.

Introduction of non-indigenous species that compete with or prey upon trout food organisms.

Habitat degradation will adversely affect game fish through an indirect effect on food organisms such as the pygmy whitefish.

STRATEGIES

Public information programs regarding distribution, angling methods and utilization to promote use of these species. Liberalize regulations to encourage angler interest.

Identify causes of deteriorating spawning conditions and work with responsible parties to alleviate or minimize the problem.

These species will benefit from all actions taken to protect trout and kokanee populations in lakes.

Fine/reward system for information regarding violations.

Include these species in monitoring programs to determine impact of land use changes on aquatic resources.

## STRATEGIC PLAN: OTHER SALMONIDS IN LAKES REGION 1

Supply and Demand

Region One has populations of all four species included in this element. The mountain whitefish is common in many of the lakes and reservoirs. It could support a substantial fishery but angler interest is low. The lake whitefish occurs in a few large lakes but few are taken by anglers. The pygmy whitefish is present in a few lakes, but is rarely caught on hook and line. Although this species is not heavily used by anglers, it is an important link in the aquatic food chain and it is part of the state's natural fauna. Grayling occur in 11 lakes in the Region and are used by anglers at a low level.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply*								
Demand	3,100	3,200	3,200	3,300	3,400	3,500	3,900	4,400
	*Undetermined							

6-YEAR OBJECTIVE:	To preserve or enhance the habitat in all lakes that support whitefish or grayling. To manage these species in lakes to provide an average annual use of 3,500 man days of recreational fishing and for scientific, aesthetic and other nonconsumptive uses within resource limitations and acceptable quality standards.
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PROBLEMS

Low angler interest in all species of whitefish is predetermined by limited knowledge of harvest methods.

These species are damaged by the same land uses and other factors that affect trout and kokanee populations in lakes.

Habitat degradation will adversely affect game fish through an indirect effect on food organisms such as the pygmy whitefish.

STRATEGIES

Inform anglers of known methods used in other areas for these species.

These species will benefit from all actions taken to protect trout and kokanee populations in lakes.

Include these species in monitoring programs to determine impacts of land use changes on aquatic resources. Place more emphasis on monitoring of waters for Environmental Protection Agency standards.

Supply and Demand

Mountain whitefish are present in several of the lakes in Region Two. Angling for this species in lakes is insignificant but a few are taken by anglers who are attempting to take trout. Grayling occur in six lakes and angling pressure is light.

Angler use on these species is low and is expected to remain well below the supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply*								
Demand	1,550	1,600	1,600	1,700	1,700	1,700	1,900	2,200

\*Undetermined

6-YEAR  
OBJECTIVE:

To preserve or enhance the habitat in waters that support whitefish and grayling. To manage mountain whitefish and grayling populations in lakes to provide an average annual use of 1,700 man days of recreational fishing by 1982 and for scientific, aesthetic and other nonconsumptive uses within resource limitations and acceptable quality standards.

PROBLEMS

Low angler interest in the whitefish.

These species are damaged by the same land uses and other factors that affect trout and kokanee populations in lakes.

STRATEGIES

Encourage utilization with information regarding distribution and harvest methods.

These species will benefit from all actions taken to protect trout and kokanee populations in lakes.

## STRATEGIC PLAN: OTHER SALMONIDS IN LAKES REGION 3

186

Supply and Demand

Lakes in Region Three support populations of mountain whitefish and arctic grayling. The whitefish are common in most of the larger lakes but angler use is low. Very few anglers fish for them but a few are taken by trout fishermen. Grayling are present in 16 lakes in the Region. Some anglers fish specifically for grayling but utilization is low.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
					(man days)			
Supply*								
Demand	4,100	4,200	4,300	4,400	4,500	4,500	5,200	5,800

\*Undetermined

6 YEAR  
OBJECTIVE:

To preserve or enhance the habitat in all lakes that support whitefish or grayling. To manage these species in lakes to provide an average annual use of 4,500 man days of recreational fishing by 1982 and for scientific, aesthetic and other nonconsumptive uses within resource limitations and acceptable quality standards.

PROBLEMS

Low angler interest in whitefish,

These species are damaged by the same land uses that affect trout and kokanee populations in lakes.

Spawning facilities for grayling are deteriorating or have been lost in some tributary streams.

STRATEGIES

Encourage utilization of this species with information regarding distribution and harvest methods.

These species will benefit from those actions taken to protect trout and kokanee in lakes.

Identify problem areas and work with individuals or agencies to prevent further degradation and to restore spawning conditions.



Supply and Demand

Lakes in Region Four support limited populations of mountain whitefish, lake whitefish and arctic grayling. Lake whitefish occur in a few lakes in the Saskatchewan drainage and angler use is very low. Mountain whitefish are present in several lakes but angler use is limited to a few taken incidental to trout fishing. Two lakes support grayling populations that are used by anglers.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply*								
Demand	3,100	3,200	3,200	3,300	3,400	3,500	3,900	4,400

\*Undetermined

## 6-YEAR OBJECTIVE:

To preserve or enhance the habitat in all lakes that support whitefish or grayling. To manage these species in lakes to provide an average annual use of 3,500 man days of recreational fishing by 1982 and for scientific, aesthetic and other nonconsumptive uses within resource limitations and acceptable quality standards.

PROBLEMS

These species are damaged by the same land uses and other factors that affect trout and kokanee populations in lakes.

STRATEGIES

These species will benefit from all actions taken to protect trout and kokanee populations in lakes.

Supply and Demand

Lakes in Region Five support limited populations of mountain whitefish and arctic grayling. Utilization of the whitefish in lakes is very low. Grayling populations are present in 12 lakes and anglers make limited use of the species in those waters.

Angler use on this element is expected to remain well below the supply through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
				(man days)				
Supply*								
Demand	500	500	500	600	600	600	600	700
*Undetermined								

6 YEAR  
OBJECTIVE:

To preserve or enhance the habitat in all lakes that support whitefish or grayling. To manage whitefish and grayling populations in lakes to provide an average annual use of 600 man days of recreational fishing and for scientific, aesthetic and other nonconsumptive uses within resource limitations and quality standards.

PROBLEMS

These species are damaged by the same land uses and other factors that affect trout and kokanee populations in lakes.

STRATEGIES

These species will benefit from all actions taken to protect trout and kokanee in lakes.

## STRATEGIC PLAN: NON-SALMONIDS IN LAKES - STATEWIDE

Supply and Demand

The statewide supply of nonsalmonid lake fishing is located in 240 individual waters. The total supply of fishing in these waters is 432,200 man days under current management.

Eighty percent of this fishery is bordered by public land where ingress is ensured. Four percent is on combinations of public and private ownership where ingress is not ensured, and the remaining 20 percent is on private land with most of this available to the public by permission of the adjoining landowners.

Current use on this element by anglers is 200,000 man days plus an undetermined amount of nonconsumptive use. Angling pressure is expected to increase in proportion to anticipated license sales. Five lakes account for one half of the statewide angling pressure on nonsalmonid species in lakes.

The current supply will meet anticipated demand for this element in all 7 administrative regions through 1990.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	432,200	432,200	432,200	432,200	432,200	432,200	432,200	432,000
Demand	204,300	209,500	214,400	219,600	224,500	231,000	256,300	287,100

GOAL:

To ensure the perpetuation of nonsalmonid species and the lake environments that support them, and to meet the public demand for these species in lakes.

6-YEAR OBJECTIVE:

To preserve or enhance the habitat in 240 waters that support nonsalmonid species. To manage nonsalmonid populations in lakes to support an annual use of 231,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

This resource is not distributed in relation to human population on either a statewide or regional basis.

Over-population and stunting of fish.

Much of this resource is in reservoirs that are operated to the detriment of fishery resources.

Chemicals used for agricultural purposes are detrimental to aquatic organisms.

STRATEGIES

Liberalize seasons and limits to encourage greater utilization of lightly used waters. Develop policies regarding the availability of recreational fishing to license buyers.

Partial or complete rehabilitation. Introduction of predator populations.

Collect data to support recommendations for reservoir management plans that would minimize impacts on fish populations. Negotiate with other agencies for cooperative projects and for more recognition of multiple use concept of reservoir management.

Encourage improvement in monitoring and controlling the use of these chemicals. Monitor suspected trouble areas to identify the problem.

(continued)

PROBLEMS

Lack of hatchery capabilities limits management programs for some species.

Proposed changes in reservoir management plans for some reservoirs will result in a loss of fishery potential.

Many of the reservoirs on both public and private land were built without consideration for fish production.

Non-salmonid populations are often overlooked in favor of salmonid species in management programs.

Some ponds are in remote locations and only available by poor roads.

Poor landowner-sportsmen relations contribute to poaching.

Overpopulation or stunting of game fish.

STRATEGIES

Develop more dependable supply of brood fish or eggs of those species needed for management programs.

Collect data needed to demonstrate the threat to the fishery and encourage appropriate groups or agencies to consider fishery values in final plans. Request cooperative funding on needed surveys.

Consider fish production capabilities in any new pond construction and in repair or revision of existing reservoirs.

Give more consideration to non-salmonid species where self-sustaining populations can be managed without damage to other resources.

Emphasize the more readily available ponds in management and I & E programs.

Continue efforts to improve sportsmen-landowner relations.

Partial or complete rehabilitation. Introduction of predator species.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 1

191

Supply and Demand

Region One has 12 lakes, ponds or reservoirs that support nonsalmonid populations. The supply of fishing in these waters for nonsalmonid species is 50,000 man days under current management and standards.

One-third of this fishery is on public land, one-third is on combinations of public and private land where complete ingress is not ensured and the remaining one-third is on tribal lands where special fees are charged.

Current annual use on this element by anglers is 30,700 man days. Pressure is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Demand	31,500	32,300	33,000	33,800	34,600	35,600	39,500	44,200

6-YEAR  
OBJECTIVE:

To preserve or enhance the habitat in 12 waters that support nonsalmonid species. To manage nonsalmonid populations in lakes, ponds and reservoirs to support an annual use of 35,600 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Over population of nonsalmonid species.

Some lakes that are managed for trout are marginal for those species and could provide more recreational opportunity or diversity if managed for nonsalmonid species.

STRATEGIES

Partial or complete rehabilitation.

Classify and manage individual waters for optimum species utilization with adequate safeguards to avoid the undesirable spread of nonsalmonids to adjoining waters.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 2

Supply and Demand

Region Two has five lakes or ponds that support nonsalmonid populations. The supply of fishing in these waters for nonsalmonid species is 10,000 man days under current management.

Most of these waters are bordered by public land where public ingress is ensured.

Current annual use on this element by anglers is 1,500 man days. Pressure is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Demand	1,600	1,600	1,700	1,700	1,700	1,700	1,900	2,200

6 YEAR  
OBJECTIVE:

To preserve and enhance the habitat in five waters that support nonsalmonid species. To manage nonsalmonid populations in lakes and ponds to support an annual use of 1,700 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Public interest in these species is low.

STRATEGIES

Encourage use of these species. Rehabilitate and replace with a more desirable species where practical.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 3

Supply and Demand

Region Three has five lakes, ponds or reservoirs that support nonsalmonid populations. The supply of fishing for these species in these waters is 20,000 man days under current management.

Over 90 percent of this fishery is bordered by public land where ingress is ensured. The remainder is on private land where permission to enter is readily available.

Current annual use on this element is 9,000 man days. Angling pressure is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u>	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
	(man days)							
Supply	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Demand	9,200	9,400	9,700	9,900	10,100	10,400	11,600	13,000

**6 YEAR  
OBJECTIVE:**

To preserve or enhance the habitat in five waters that support nonsalmonids. To manage nonsalmonid populations in lakes, ponds and reservoirs to support an annual use of 10,400 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Stunted or undersized fish in these populations.

STRATEGIES

Partial or complete rehabilitation where feasible. Introduction of predators where spread to other waters would not threaten other species.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 4

Supply and Demand

Region Four has 11 lakes and reservoirs that support non-salmonid species. The supply of fishing from nonsalmonids in these waters is 63,000 man days under current management.

Approximately 90 percent of this fishery is on public land where ingress is ensured. Five percent is on private land where public use is permitted and the remaining five percent is on tribal lands where special fees are levied.

Current annual use on this element by anglers is 25,300 man days. Pressure is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000
Demand	25,900	26,600	27,200	27,900	28,500	29,300	32,500	36,400

6-YEAR  
OBJECTIVE:

To preserve or enhance the habitat in 11 waters that support non-salmonids. To manage nonsalmonid populations in lakes, ponds and reservoirs to provide an annual use of 29,300 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Many reservoirs were built without consideration for fish production.

Some existing lakes are marginal for production of these species.

Operation of Tiber Reservoir for flood control reduces northern pike spawning facilities.

Lack of hatchery capabilities limits management programs for some species.

STRATEGIES

Consider fish production in planning for new reservoir construction.

Negotiate with landowners for lake improvement measures as needed to meet demand for nonsalmonid fishing.

Negotiate with Bureau of Reclamation for more consideration of fishery values in reservoir operational plans. Inform public of the recreational potential.

Develop more dependable supply of those species needed for management programs.



## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 5

195

Supply and Demand

Region Five has ten lakes, reservoirs or ponds that support nonsalmonid populations. The supply of fishing in these waters is 52,000 man days under current management.

Three-fourths of this fishery is on public land where ingress is ensured and the other 25 percent is on private land with permission easily obtainable.

Current annual use on these waters by anglers is 25,000 man days. Pressure is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	52,000	52,000	52,000	52,000	52,000	52,000	52,000	52,000
Demand	25,600	26,300	26,900	27,600	28,200	29,000	32,200	36,000

6-YEAR  
OBJECTIVE:

To preserve or enhance the habitat in 10 waters that support nonsalmonid species. To manage nonsalmonid populations in lakes, reservoirs and ponds to provide an annual use of 29,000 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic and other nonconsumptive uses.

PROBLEMS

Most of the reservoirs are operated to the detriment of non-salmonid species, especially regarding spawning facilities.

Information is incomplete regarding standing crop and location of supplies.

Access to some of these lakes is limited by land ownership and lack of roads.

STRATEGIES

Identify habitat needs and negotiate with agencies for greater consideration of fishery values in reservoir operational plans.

Collect needed information and inform the public of recreational opportunities

Identify and acquire access sites in relation to angler use and access priorities within the region.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 6

Supply and Demand

Region Six has 55 lakes, ponds or reservoirs that support nonsalmonid populations. The supply of fishing for nonsalmonids in these waters is 187,500 man days under current management.

Eighty-five percent of this fishery is on public land where ingress is assured and the remaining 15 percent is on private land where public use is permitted.

Current annual use of these waters by anglers is 86,700 man days and it is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	187,500	187,500	187,500	187,500	187,500	187,500	187,500	187,500
Demand	88,900	91,000	93,200	95,300	97,500	100,300	111,400	124,800

6-year  
OBJECTIVE:

To preserve and enhance the habitat in 55 waters that support nonsalmonid species. To manage nonsalmonid populations in lakes, ponds and reservoirs to provide an annual use of 100,300 days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Much of this fishery is located in reservoirs that are not managed to benefit fish production or recreational fishing.

Intermediate-sized reservoirs, which are best suited for fish management are lacking.

Proposed diversions from Fort Peck Reservoir will adversely affect sport fish production in the Big Dry Arm.

The supply of northern pike and walleyes from hatcheries is not adequate to meet the needs.

STRATEGIES

Identify problems or needs and negotiate with managing agencies for greater consideration of fishery values in reservoir management plans.

Identify potential sites and plan for reservoirs to be constructed as needed.

Determine habitat requirements of sport species and encourage consideration for fishery values in project plans.

Encourage Miles City National Fish Hatchery to develop more dependable supply of these species.

## STRATEGIC PLAN: NONSALMONIDS IN LAKES - REGION 7

Supply and Demand

Region Seven has 133 ponds and reservoirs that support nonsalmonid populations. The supply of fishing for these species in these waters is 49,700 man days under current management.

Seventy percent of this fishery is on public land where ingress is ensured and 30 percent is on private land where public use is allowed.

Current annual use of these waters is 21,200 man days and that is expected to increase in proportion to anticipated license sales.

Projected Supply and Demand Data

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (man days)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
Supply	49,700	49,700	49,700	49,700	49,700	49,700	49,700	49,700
Demand	21,700	22,300	22,800	23,400	23,900	24,600	27,200	30,500

6 YEAR  
OBJECTIVE:

To preserve and enhance the habitat in 133 waters that support nonsalmonid species. To manage nonsalmonid populations in ponds and reservoirs to provide an annual use of 24,600 man days of recreational fishing within resource limitations and acceptable quality standards and for scientific, aesthetic or other nonconsumptive uses.

PROBLEMS

Many of the ponds are short-lived and do not provide fishing for long periods of time.

The Federal agency that provides fish for these ponds has indicated that revised priorities may limit fish for private ponds in the near future.

Ponds are usually built and managed for a purpose other than fishing.

Many ponds are in remote locations and only available by poor roads.

Poor landowner/sportsmen relations cause land closures in some instances.

Over-population and stunting of fish.

STRATEGIES

Monitor ponds to maintain current data regarding fishery potential.

Monitor pond conditions to maintain data on current status of those on public land. Acquire permanent easement and access to high priority ponds near population centers. Emphasize pond management and construction on public lands.

Establish management criteria and manage only the ponds that meet minimum requirements. Encourage good watershed management programs.

Emphasize the more readily available ponds in management and I & E efforts.

Continue efforts to improve landowner/sportsmen relationships.

Partial or complete rehabilitation. Introduction of predator population.



## NONGAME FISH - STATEWIDE

Supply and Demand

This category includes fish harvested commercially, other fish not included in game fish categories, amphibians and aquatic invertebrates. Included are 55 species of fish, 16 species of amphibians, 110 species of mollusks, 200 species of crustaceans which are classified by law as "nongame", and an undetermined number of other invertebrates.

Commercial fishing has been permitted in Montana for many years with varying degrees of participation. Buffalo, carp and goldeyes have been the primary species in the commercial harvest with lesser amounts of suckers, carp suckers and catfish. Catfish are now classified as a game fish and can no longer be included in the commercial harvest.

A commercial harvest of bait fish is also permitted in the eastern part of the state. Eighteen dealers are currently licensed to collect and sell bait fish in Regions Four, Five, Six and Seven.

Other fish, amphibians and aquatic invertebrates are used for scientific or educational purposes, for fish bait and to a very limited extent, for human consumption. They also serve as an important part of the aquatic food chain and as indicators of water quality. The supply of and demand for these resources has not been determined.

## STATEWIDE GOAL:

To ensure the perpetuation of all aquatic nongame species and to meet the public demand for nongame fish, amphibians and aquatic invertebrates for commercial, scientific, aesthetic and other nonconsumptive uses.

## 6-YEAR OBJECTIVE:

To protect and preserve all aquatic species and their habitats for scientific, educational and other beneficial uses and to provide for an annual commercial harvest of 1,000,000 pounds of nongame fish where commercial fishing is compatible with recreational use of fish and wildlife. To determine the status, distribution and habitat requirements for at least one species of amphibian. To assess public demand for consumptive and nonconsumptive use of nongame fish, amphibians and aquatic invertebrates.

PROBLEMS

Habitat changes are taking place which have an unknown affect on many species.

Intensive commercial harvest of some species has had an adverse affect on size structure of some fish and has reduced supply of forage fish in some waters.

Data regarding distribution, abundance and species composition of all groups in this category are limited or lacking.

STRATEGIES

Maintain existing water quality to the extent possible. Partially fund habitat preservation activities with nongame monies.

Monitor commercial harvest of all species in waters where this harvest might adversely affect other resource uses.

Develop techniques and inventory data for these species. Place more emphasis on projects that will provide this information, especially for those species that provide forage for game fish.

(continued)

## NONGAME FISH STATEWIDE (continued)

PROBLEMS

Funding and manpower levels are inadequate for the nongame program.

Administrative demands of the endangered species program preclude activities on other nongame species.

The nature, scope and extent of consumptive and nonconsumptive use of these species have not been determined.

STRATEGIES

Develop appropriate funding sources for the nongame program.

Develop separate funding for these two segments of the program.

Develop methods for determining and measuring these uses. Determine the extent of interest in these species by individuals and organizations.

Supply and Demand

During 1975 the commercial harvest of fish occurred on three waters: Lake Helena, Medicine Lake and Fort Peck Reservoir. The total harvest was 623,000 pounds. One-fourth of this came from Lake Helena in Region Four and the balance was taken from the other two lakes which are in Region Six.

Although the total supply of rough fish available for harvest is high, the harvestable crop of some species is limited. Intensive harvest of goldeye in portions of Fort Peck Reservoir substantially reduced the numbers of fish large enough for commercial value.

Commercial harvest and sale of bait fish is permitted and 18 dealers are currently licensed. These dealers operate in Regions Four, Five, Six and Seven. Harvest data is not available for this segment of the commercial fishery. However, harvest has been restricted in some waters where it appeared that forage supplies for game fish were substantially reduced.

Projected Supply and Demand

	<u>76-77</u>	<u>77-78</u>	<u>78-79</u>	<u>79-80</u> (pounds)	<u>80-81</u>	<u>81-82</u>	<u>1985</u>	<u>1990</u>
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## Supply\*

Demand	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
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\*Undetermined

6-YEAR OBJECTIVE:

To protect and preserve the waters that produce commercially harvestable crops of fish and to provide for an annual harvest of 700,000 - 1,000,000 pounds of nongame fish where that harvest is compatible with recreational use of fish and wildlife.

PROBLEMS

Data regarding the effect of harvest on selected species is incomplete or lacking.

Intensive harvest of bait fish appears to have an adverse affect on forable supplies in some waters.

Distant markets and low prices limit the demand.

Conflicts between commercial and recreational fishermen have reduced the recreationists' acceptance of commercial fishing as a beneficial use of fishery resources.

STRATEGIES

Determine allowable harvest for species of concern.

Monitor the commercial harvest where possible and regulate the take conservatively where data is lacking.

Encourage the development of new markets.

Improve methods of monitoring and controlling the commercial fishermen. Encourage the commercial fishermen to improve their relationship with recreationists.

## OTHER NONGAME FISH - STATEWIDE

Supply and Demand

This element includes nongame fish other than those of commercial value, amphibians and the aquatic invertebrates. Data regarding the supply of these species is very limited. These organisms serve an important place in aquatic food chains and some are valuable indicators of water quality. They are also used for scientific or educational purposes, for fish bait and to a very limited extent, for human consumption.

During the planning period the Nongame Project will include a determination of the status, distribution and habitat requirements for at least three species of nongame fishes and one species of amphibian for which priorities are highest, an inventory of invertebrates in the lower Yellowstone River and an assessment of public demand for consumptive and nonconsumptive uses of nongame aquatic species.

6-YEAR OBJECTIVE:

To preserve or enhance these species and their habitats and to provide an opportunity for beneficial uses of these organisms.

PROBLEMS

The status of many nongame fishes and amphibians is poorly known.

Data regarding the distribution of invertebrates and the species composition of invertebrate communities is lacking.

Current funding and manpower are inadequate for even preliminary surveys.

Administrative demands of the endangered species program preclude activities on other nongame species.

The nature, scope and extent of consumptive and nonconsumptive use of these species have not been determined.

STRATEGIES

Develop fact finding projects and appropriate funding.

Develop inventory methods and appropriate funding.

Develop appropriate funding sources for nongame projects.

Develop separate funding for these two segments of the program.

Develop methods for determining and measuring these uses.



## APPENDIX 11

Fisheries Methodology

The Fish Program includes all aquatic organisms of importance to recreational, commercial, aesthetic and scientific uses of the state's aquatic resources. Categories and elements were selected to identify species or groups of species and water types. Although the Plan recognizes a wide variety of species, water types, and resource uses, the supply inventory and demand evaluation dealt largely with the recreational and commercial fisheries. No quantitative data is available regarding the nonconsumptive uses of fish and other aquatic organisms, but it is generally agreed that the interest in these species is increasing.

The supply data for the recreational fishery was obtained through personal interviews with regional fisheries personnel. A composite map of each Fish and Game Administrative Region was prepared from U.S.G.S. topographic maps at a scale of 1:250,000. This series provided statewide coverage and could readily be used in the field. The major disadvantage of these maps is that the large scale loses some stream detail with a resulting negative error in stream length. The error is negligible on larger rivers but is greater on some small sinuous streams. Because of this, the stream supply data is a minimal estimate.

The fishery managers and/or their staff biologists identified waters that support fish populations that could be used for beneficial purposes. This was based largely on those species legally classed as game fish except in those waters where nongame species are currently supporting recreational, commercial or other uses.

Mark-and-recapture techniques have been used to estimate standing crops in selected portions of Montana streams. Most of this work has been on salmonid streams and the estimates have usually been limited to trout populations. Detailed population estimates are available in 33 individual trout stream sections. These range from populations of less than 100 trout per mile on small unproductive streams to over 3000 trout per mile on larger rivers.

Based on available data and literature, it was assumed that 40 percent of the standing crop of eight inch and larger trout could be harvested on a sustained yield basis. On that assumption the number of harvestable trout ranged from less than 100 to approximately 1200 per mile.

These population estimates were categorized by numbers and sizes of harvestable trout in each of the 33 populations (see page 20.) These data provided guidelines for the fishery personnel who estimated supply in streams where population data was limited or lacking.

Streams or stream segments that support fishable populations of mountain whitefish were identified by regional personnel but no estimates of standing crop were made on individual streams. It was estimated that whitefish populations could sustain an average annual pressure of 200 man days per mile. This estimate is conservative, but it is unlikely that angler use on this element will approach this level within the planning period.

The major stream fishery for kokanee occurs in the Flathead River system. The supply and demand for that fishery was estimated by Region One personnel based on recent survey data and on-site creel studies.

The paddlefish fishery is limited to a few areas on the lower reaches of the Yellowstone and Missouri Rivers. Intensive studies conducted during recent years in those areas provided data on supply and demand for this fishery.

Other non-salmonid streams were also identified by fisheries personnel. There was no mark-and-recapture data available for these species so no estimates of standing crop were made for individual streams. It was estimated that these waters could support an annual average of 200 man days of recreational fishing per mile without adversely affecting the fish population or the quality of fishing.

The identified stream segments were measured on an electronic planimeter. The supply of harvestable fish in each stream was determined by multiplying length times the harvestable fish per mile. This data was converted to an equivalent number of man days of recreational fishing based on catch rates of recent creel studies.

(continued)

# Fisheries Methodology (continued)

Regional personnel also identified lakes, ponds and reservoirs that currently contain populations of fish that can support recreational use. An estimate of maximum sustainable angling pressure for each water was made. These estimates were based on specific survey data whenever possible. If such data was not available, the estimate was based on known data from similar waters in the area.

Salmonid lakes and non-salmonid lakes were treated separately. If a water contained species from both groups, separate estimates were made for each group.

The ownership of land adjoining or surrounding each stream and lake was classified with regard to the availability for public fishing. Seven categories of ownership and ingress were described ranging from mostly public land which ensures public ingress to private lands where public use is prohibited (see page 206).

Demand data was determined from residential population data, annual license sales from 1970-1975 and an estimate of annual fishing pressure. Demographic records were obtained from the Department of Community Affairs and fishing license sale data was obtained from Department of Fish and Game records. Current angler use was determined by a mail survey during the period May, 1975 through April, 1976. Questionnaires were mailed periodically to licensees asking where they had fished during designated time periods (see pages 207 and 208). The responses were used to estimate total statewide pressure, use on each water type, and the use on individual waters.

Projected demand levels during the planning period were based on three assumptions: (1) trends in fishing license sales for the period 1970-1975 would continue; (2) the relationship between license sales and annual pressure during 1975-1976 would continue; and (3) future trends in angler use by residents and non-residents would be similar.

No estimate of the supply of commercial fishing was made. Markets are variable with regard to species and very little population data is available for the species currently in demand by commercial fishermen. The recent annual harvest by commercial fishermen have been approximately 700,000 pounds and it is anticipated that this use level will be maintained through the planning period.

## COMPARISON OF HARVESTABLE CROPS BASED ON TROUT POPULATION ESTIMATES

No. of Fish Available for Harvest (40% of Standing Crop)	6"-10" <sup>1</sup>	8"-14" <sup>2</sup>	8"-18" or over <sup>2</sup>
1000+		Armstrong Springs Spring Creek (A) O'Dell Creek	Madison (Warney) Madison (Morrie)
750 - 1000			Poindexter Slough Yellowstone (9th & Carters)
500 - 750			16 Mile (CA Ranch)
250 - 500	Bloody Dick Creek 16 Mile (Headwaters)	E. Gallatin W. Fork Madison McDonald Spring Spring Creek (B)	Yellowstone (Mallard Rest) E. Gallatin (Balgrade) Big Hole (Malross & Raichle) Beaverhead River
100 - 250	P. Pear Creek Fridley Creek		Beaverhead River Big Sheep Creek Sbields River
<100	W. Fork Stillwater Mol Beron 8 Mile Creek Trail Creek Long Creek W. Fork Ruby E. Fork Ruby Middle Fork Ruby		

<sup>1</sup>Nearly all fish available are this size<sup>2</sup>Significant numbers of these size are available. Smaller fish may or may not be available.

CLASSES OF LAKE AVAILABILITY

1. Public land insures access to enough of the lake to make all of the lake available from shore and/or from boat.
2. Public land borders the lake but its extent, size or location doesn't provide adequate access to all or most of the lake for all types of anglers to the extent that they could fully utilize the lake.
3. A lake bordered by private land where ingress is uncontrolled or readily available by permission. Corporate land usually in this category. Posting may occur.
4. A lake bordered by private land where ingress is more restricted than no. 3 and where permission to enter is more difficult to obtain.
5. A lake involved in some type of fee fishing such as leased fishing rights, daily entrance fee or a permit sold by an owner or private group.
6. A lake surrounded by private land where little or no ingress is permitted. An owner and a few friends may use the lake but the public is excluded for all practical purposes.
7. A lake bordered mostly by public land that is essentially unavailable because of posting of surrounding private land or locked gates on private roads.

CLASSES OF STREAM INGRESS

1. Stream section bordered almost entirely by public lands which insure ingress by anglers. (Exclude state school sections.)
2. A stream section bordered mostly by public land distributed in such a way that no significant portion of the stream is unavailable by vehicle and/or walking. Floating may also be a major means of access.
3. A stream section bordered mostly by private land where ingress is uncontrolled or readily available by permission. This portion may be available by floating or through navigability laws. Also includes corporate lands; these are currently open but could go to individual ownership in the future or company policy regarding ingress could change.
4. A stream section bordered mostly by private land where little or no ingress by permission is allowed. May include minor portions where public land or road crossing may provide limited ingress. The portion through private land is available by floating or through navigability laws.
5. A stream section bordered entirely by private land where public fishing is available for a fee or where a small group has leased exclusive rights. Legality may be in question on some streams but this category identified the current "fee" or "lease" fishing areas.
6. Stream section bordered entirely by private land where public fishing is not permitted. Owners and a few friends may be using the fishery. Floating precluded by stream size or other physical limitation (no road or public land to reach stream).
7. A stream or stream segment bordered by public land that is unavailable because of posting on private land or locked gates on private roads.



# MONTANA FISH AND GAME DEPARTMENT

HELENA, MONTANA 59601

DEAR FISHERMAN:

WE NEED HELP IN GATHERING FISHING INFORMATION ON MONTANA'S LAKES AND STREAMS. YOU ARE ONE OF A SMALL GROUP OF REPRESENTATIVE FISHERMEN THAT WE ARE CONTACTING. PLEASE LET US KNOW WHERE YOU WENT FISHING ON THE DATES LISTED BELOW.

THIS IS NOT A SURVEY TO DETERMINE HOW MANY OR WHAT KINDS OF FISH THAT YOU CAUGHT. SO, EVEN IF YOU DID NOT FISH, DID NOT CATCH ANY FISH, OR RELEASED THE ONES THAT YOU CAUGHT, PLEASE FILL OUT AND RETURN THE QUESTIONNAIRE. ALSO INCLUDE DAYS SPENT SNAGGING OR USING OTHER METHODS TO CATCH FISH AS ALLOWED IN FISHING REGULATIONS.

THANK YOU FOR YOUR ASSISTANCE.

MONTANA FISH AND GAME DEPARTMENT

DID YOU BUY A 1976 LICENSE? ( ) YES ( ) NO  
1 DID NOT FISH IN MONTANA DURING THIS TIME PERIOD ( )

NAME OF LAKE OR STREAM FISHED		NEAREST TOWN OR COUNTY
FRI 1		
SAT 2		
SUN 3		
MON 4		
TUE 5		
WED 6		
THUR 7		
FRI 8		
SAT 9		
SUN 10		
MON 11		
TUE 12		
WED 13		
THUR 14		
FRI 15		
SAT 16		
SUN 17		
MON 18		
TUE 19		
WED 20		
THUR 21		
FRI 22		
SAT 23		
SUN 24		
MON 25		
TUE 26		
WED 27		
THUR 28		
FRI 29		
SAT 30		

N-08



STRATEGIC PLAN FOR THE MONTANA STATE PARKS PROGRAM

Prepared under the supervision of  
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and

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Planning and Project Administration Bureau  
Parks Division  
Montana Department of Fish and Game

March 1, 1978





## SUMMARY OF MAJOR FINDINGS

The central theme of this Strategic Plan for the Montana State Parks Program has been to identify major problems which may impede the provision of recreational services to Montanans and visitors to Montana. The identified problems were prioritized as major tasks in light of the legal responsibilities of the Montana Department of Fish and Game for their immediacy and severity. They are restated again in the concluding chapter "Major Tasks to be Undertaken in the Parks Program of the Department of Fish and Game."

1. The state park system must be maintained at a level acceptable to the public.
2. Additional and alternative reasonable sources of funding must be found to support the state park system.
3. In order to best utilize present and prospective limited funds there is a need to establish regional management plans which will relate directly to the actions and budgets of Montana's regions conceived of either as resource areas or administrative units.

Prerequisite to or concurrent with the formulation of these regional management plans the following tasks must be accomplished:

- a. Overall policies, procedures, and criteria to adequately evaluate potential land acquisitions must be established and/or more adequately articulated.
- b. Efforts to provide for river and lake access must be continued; alternate sources of funding and alternate methods to fee simple land acquisition must be found; efforts must be undertaken to protect the rights of adjacent land owners and the environmental quality of Montana's rivers and lakes must be continued.

- c. Conflicts and overcrowding within the state park system require for the protection of users, facilities, and resources the establishment of sound management plans for these areas.
- d. Maximum benefits must be derived from present law enforcement resources available to the Parks Program and with this accomplished, the adequacy of the current level must be evaluated.

4. The snowmobile management program must be more adequately implemented and efforts to establish an adequately funded, unified off-highway vehicle management program should be made.

5. Since the bulk of outdoor recreation in Montana will occur in urban areas, program managers must continue to refine procedures assuring fair and equitable distribution of the the LWCF to Montana's communities including the gathering of necessary data, provision of information on the program, assurances that facilities are serving the widest possible population, and the stimulation of innovative approaches to project and program design and development.

6. Efforts must be continued and expanded to insure that rural subdivision and the extraction and development of natural resources, particularly on public land, are conducted in a manner compatible with the long-range interests of Montana's cultural, scientific and recreational resources.

# MONTANA

ii



FISH AND GAME ADMINISTRATIVE REGIONS  
AS USED IN PARKS PROGRAM

## TABLE OF CONTENTS

	<u>Page</u>		<u>Page</u>
SUMMARY OF MAJOR FINDINGS . . . . .	i	Sightseeing . . . . .	63
MAP OF MONTANA . . . . .	ii	Cultural and Scientific Resources . . .	67
INTRODUCTION . . . . .	1	Urban Recreation . . . . .	71
STRATEGIC PLANS		Special Populations . . . . .	75
Camping and Day Use . . . . .	7	Energy Conservation and Recreation Participation . . . . .	79
Boating . . . . .	17	Recreation Costs in Montana . . . . .	83
Non-Urban Swimming . . . . .	23	Major Tasks to be Undertaken in the Parks Program of the Department of Fish and Game . . . . .	91
Non-Motorized Trail Activities . . .	27		
Off-Highway Vehicle Recreation . . .	37		
Site Oriented Winter Activities . . .	43		
Downhill Skiing . . . . .	49		
Winter Trail Activities . . . . .	53		
Snowmobiling . . . . .	59		



Philosophy

The Montana state park system (A.R.M. 12-2.26(1)-52670) and consequently the state Parks Program emerged as a result of concern with the benefits of tourism with major impetus being provided by federal encouragement through the Civilian Conservation Corps in the 1930's and the Land and Water Conservation Fund (LWCF) in the 1960's and 1970's. While making Montana's natural resources available to tourists remains an objective in the management of the park system, recent years have witnessed a shift in emphasis, stimulated largely by urbanization and greater environmental appreciation, toward a park system viewed as a social service institution necessary to the maintenance of a high quality daily life for Montanans.<sup>1</sup>

The service obligation of the park system is clearly spelled out in law (Sec. 62-304, R.C.M. 1947) as the conservation of scenic, historic, archaeologic, scientific and recreational resources & their subsequent management for the use and enjoyment of the people. To a degree, management for conservation and use are contradictory goals neither of which may be allowed to predominate within the system. There is little point in conserving resources if they cannot be used and enjoyed by people but use cannot be allowed to destroy the very thing being conserved either. Management such as land acquisition, capital construction, law enforcement, interpretation, the provision of information, operations, general maintenance and coordination with other agencies, must be carefully balanced to produce the end product--resources of value to present and future generations.

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<sup>1</sup> A complete history of the park system has been provided by David Conklin, "Development of the State Park Idea in Montana," unpublished manuscript, Montana Department of Fish and Game, 1977.

The magnitude of the management task and the potential for conflict strongly suggest that comprehensive planning should be a tool of considerable value to managers. In fact, despite a ten year history of comprehensive recreation planning by the Parks Division, the experience with planning has been less than satisfactory. The reasons for this are undoubtedly many and complex; however, the major cause of failure seems to be the search among planners for a singular deterministic model which would dictate future action. While a planning process which removes the requirement for discretion, judgment and insight from the manager may be a worthy goal, the salient fact remains that the methodology for accomplishing the goal is lacking now and is not likely to be developed quickly. Dictatorial methods are therefore dismissed as being beyond planning's ability. The Parks Division views the goal of planning as:

Providing information and insight which will assist the manager in making the critical decisions of today in such a manner as to maximize future management latitude as well as respond to future conditions.

Throughout this plan, unless specified, the term "manager" is used in its broadest sense to include all who possess authority to make decisions affecting the state park system. In addition to "park managers" in this limited sense, this includes the executive and legislative branch of the state of Montana as well as Congress and appropriate executives of several federal agencies.

In essence, the manager faces two critical areas of decision-making. First, he must assure that the present system is adequately provided for. Second, he must undertake work which will eventually shape the future state park system.

With respect to the first obligation the manager must ask himself if the user is satisfied with the resources available to him. Is he safe, is his health assured? Is the resource cared for and perpetuated for future generations as well? Or is it overused,

neglected and deteriorating? Here the planner is called upon to help the manager define parameters, identify weaknesses and formulate strategies for coping with these weaknesses.

The manager has a certain amount of discretionary time beyond insuring basic operation of the system to work on formulation of the system's future. He may identify resources needing conservation, assist in land acquisitions, assist in formulation of design concepts or provide information to the public. Here the planner is called upon to assist in the identification of potentially desirable resources, prospective future desires and sociological trends.

In these areas of decision-making, it is vital to note that definitive answers to the questions most likely asked by managers simply do not exist. Ultimately, then, the function of planning is to interpret for the manager the complex world before him, particularly the long-range commitments which today's decisions may imply. This process should open perspectives and opportunities rather than restrict action. Within the limits of legal dictates, the final decision as to where to channel action will and must remain with management rather than planning.

#### Methodology

The usual method adhered to in the preparation of comprehensive recreation plans is to: 1) identify demand or participation, 2) identify supply and 3) balance demand and supply to identify present and future needs. To a degree this method is adhered to in this plan. However, the standard planning model is beset with serious difficulties. Most notably, the measuring systems necessary to identify supply and demand beg for precision. Even though imprecise, the most technically advanced measurements have been developed for programs. As a result, most comprehensive planning for recreation tends to produce plans for

long range capital projects rather than true management plans. This must be viewed as unacceptable, for, while capital construction is a valid technique for providing outdoor recreation opportunity, other viable techniques such as provision of information, law enforcement, and greater agency cooperation are deemphasized.

Even if the problems surrounding existing measurement systems could be overcome, the general planning model has innumerable operational approaches which fail to produce comparable results.<sup>1</sup> In other words, the selected operational model for recreational planning, if strictly adhered to by management, would alone determine future direction. The failure to produce a satisfactory planning model has undoubtedly contributed to management's unwillingness to rely on planning as a tool.

To avoid these methodological difficulties the Parks Division is committed to the overall goal of:

Managing Montana's resources to meet present and future demand for recreation participation in a manner consistent with resource capability.

This goal will be met through the application of a variety of management methods including regulation, provision of information, inter- and intra-agency cooperation, law enforcement, site protection, land acquisition and capital improvements. These tools may be applied where necessary and possibly in such a manner as to influence participation itself.

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<sup>1</sup> Clynn Phillips, et. al., Projections of outdoor recreation participation for South Dakota: 1990 Laramie, Wyo. University of Wyoming Water Resources Research Institute, April, 1975.

Activities on Which Data Was  
Gathered for This Plan

Further, as a device to assist the planning effort it was initially hypothesized that:

Present and future management efforts are adequately coping with and will continue to adequately cope with the demand for recreation relevant to the existing supply.

All evidence which would tend to negate this hypothesis is defined as a problem which needs to be addressed. Problems are addressed through the formulation of strategies which require either redirection of current effort or the provision of new effort and which might be employed at some future date as a partial solution to the problem identified. Among the many potential problems and strategies identified, only a limited number are simultaneously demanding of immediate attention and clearly within the responsibilities of the Montana Department of Fish and Game. These problems are set out as tasks to be addressed by the Department's Parks Program in the final chapter of this plan. Current strategies being applied to these problems as well as strategies which will be implemented in the future are also identified in the final chapter of this plan.

Camping and Day Use

Boating - River Floating, Sailing and Motorboating

Non-Urban Swimming

Non-Motorized Trail Activities - Walking, Backpacking, Bicycling, and Horseback Riding (both on and off trails)

Off-Highway Vehicle Recreation - 4-Wheel Vehicle Driving and Motorcycle Riding

Site Oriented Winter Activities - Ice Skating on man-made rinks and natural water bodies, Sledding, Tubing, and Tobogganing

Downhill Skiing

Winter Trail Activities - Cross-country Skiing and Snowshoeing

SnowmobilingSightseeing

One effect of this procedure has been to force the planning process, in the collection and analysis of data, to dwell only upon those recreational activities for which there is a degree of public management responsibility borne by the Montana Department of Fish and Game or other public agencies (Table I).

Excluded from this list and beyond the scope of this plan per se are a number of activities about which little direct data was gathered but which are provided for to a degree as "spin-off" benefits from the entire park system. The list could be as long as the imagination allows but some obvious examples are photography, bird watching, flower collecting, and rock hounding.

Also excluded from the list in Table I are resources which are vital to Montana's recreational system but about which meaningful data is nearly impossible to gather. Notably, this is the use, enjoyment and study of Montana's cultural, historic, archaeologic and scientific heritage. The management of these resources is explicit in Law (Sec. 62-304 R.C.M. 1947) and implicit in the state park system site classification criteria (A.R.M. 12-2.26(1)-S2670). These sites may generally be viewed as the central reason for the existence of the state park system. However, evaluating these sites in terms of participation or attendance will not assess their value to the people of Montana because their true worth resides in subjectivities and aesthetics. Examples of sites and values falling into this category are displayed in Table II.

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TABLE II  
Unquantified Values of Selected  
Montana State Parks and Monuments

	<u>Park</u>	<u>Value</u>
1.	Bannack	History
2.	Chief Joseph Battleground	History
3.	Chief Plenty Coups Memorial	History
4.	Fort Owen	History
5.	Giant Springs	Science
6.	Lewis & Clark Caverns	Science/Scenic
7.	Makoshika	Science/Scenic
8.	Missouri Headwaters	History
9.	Pictograph Cave	Archaeology

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To the extent that any management program compromises the unquantified values of park resources, it would have to be judged inadequate. Further, many of the decisions concerning future expansion and management of the park system will of necessity and law center around the unquantifiable values.

It has also been necessary to discuss topics not directly associated with recreational activities per se. These include: 1) service to special population groups, 2) the adequacy of funding for Montana's overall recreational resources, 3) the standing of urban areas as recipients of federal funds for recreation, and 4) the relation of outdoor recreation to the energy situation and to energy conservation. At this point it is necessary to note that the term "urban" in this plan is used in a political rather than demographic sense. An urban area is defined here as an incorporated town.

Since this plan seeks generalization, it therefore lacks specifics. These specifics will be developed through three interrelated "action planning" functions:

- 1) Budget Formulation. This plan is based on the assumption that the Montana Department of Fish and Game will continue to experiment with planned program budget formats approaching a "zero base." Under this concept, action projects will be developed and evaluated against their ability to address major problems and to provide recreation in a timely fashion.
- 2) Management Planning. The Department has begun experimentation with approaches to site and resource long-range management planning. It is assumed that this effort will continue.
- 3) Continued Comprehensive Planning. Comprehensive planning will draw future projects from those centering directly around problems identified as major within this plan. It is assumed that the long-range objective will be to structure comprehensive plans for each of the seven department administrative regions.



Throughout the plan, dictation of policy, procedure or goals to other agencies has been avoided. However, where problems and areas or types of responsibility may, in whole or in part, best be addressed by other agencies, this is identified. Further, the need to enhance coordination efforts as a strategy for coping with problems has frequently been proposed.

#### Data Collection, Presentation, Use, and Availability

Data on demand, participation, and opinions concerning outdoor recreation in Montana were gathered through three independent surveys:

1. A July, 1976, participation/opinion mail survey sent to adult Montanans randomly selected by county from the Motor Vehicle Registration Files.
2. A February, 1977, participation/opinion mail survey. The sample source was the same as above.
3. A structured interview of selected aged and/or handicapped individuals.

Supply data was gathered from routinely available standard sources subject to inter-agency review and contained within:

Montana Department of Fish and Game, Parks Division, Statewide Non-Urban Developed Recreation Site Inventory. January, 1976.<sup>1</sup>

No attempt has been made in this plan to reproduce all the data gathered. Rather, only data offering critical guideposts has been relied upon. With certain exceptions, the format for data presentation is the same for each activity. Tables divided by state and Fish and Game

Administrative Regions are shown (refer to state map) and participation rates (defined as the average number of occasions per capita of participation within the survey month) are presented. Participation rates are then multiplied by the population for 1976, 1980, 1985, and 1990 to determine total resident participation. This was adjusted, where the information was available, to reflect travel patterns for recreation. Where this was done, total resident participation is a reflection of where the activity took place rather than where the recreationist lived.

Supply was defined as those sites inventoried above offering support for the given activity. An adequacy indicator was then calculated by dividing total participation by supply. Obviously the larger the adequacy indicator the greater the magnitude of activity each site must bear.

A relative need indicator was then calculated on the assumption that management wants to allocate resources in proportion to the participation-supply ratio. The relative need indicator was calculated by dividing the regional adequacy indicator by the sum of the adequacy indicators for Regions 1 through 7 and multiplying by 100. The relative need indicator is expressed in dollars rather than a per cent and where no supply indicator was available, participation was used to calculate the relative need indicator.

The relative need indicator is not intended to be an inflexible technique for budget allocation. Rather, it is intended to be interpreted as an indicator only based on the above assumption of management behavior and the assumption that the data is precise. The relative need indicator is accompanied by a rank order prioritization of each Fish and Game region. Like the relative need indicator, the prioritization is intended to assist as a general guide only and is subject in its interpretation to the same assumptions and caveats as the relative need indicator.

<sup>1</sup> This information has since been revised in Volume 2 - Outdoor Recreation Inventory

As long as the data is used only as a guide to relative trends, violations of assumptions concerning its precision are generally tolerable.

Users of the data, however, are advised to be aware of several inherent problems:

- 1) Since there is no knowledge of what the participant meant by an "occasion," comparison of levels of participation between activities can be undertaken only at great risk.
- 2) Confidence intervals which surround the rate of participation and consequently the total participation are rather large. Again, the intent is to view the data in terms of relative general trends. This implies that small differences in total participation between regions must be interpreted as no difference at all. Precise measures of confidence can be provided upon request.
- 3) Population projections were obtained from the Research and Information Systems Division of the Montana Department of Community Affairs and are subject to the assumptions and reservations which accompany that data. Most notably
  - 1) population is probably over-estimated statewide and
  - 2) population projections for Fish and Game Administrative Regions 6 & 7 are probably high and low respectively.
 Uncertainty concerning future mineral developments in Montana make all population projections concerning the state exceedingly speculative. These projections have necessarily been limited to twelve years to correspond with the census periods for which population projections are available.
- 4) The supply indicators do not consider either the magnitude or quality of each unit of supply. Further, considering that much

activity in Montana is "dispersed," supply is universally underestimated. It is assumed that regional inaccuracies balance out.

- 5) Recreation by non-residents in Montana, with one exception, is not considered in formulating adequacy indicators or relative need indicators. The one exception is "Developed Camping" where an estimate was made from data collected in 1971. Even here, the estimate is of doubtful accuracy at this date. Similarly, the impact of recreational resources immediately adjacent to Montana have not been considered.

Despite apparent weaknesses, the data base provides considerable insight and utility. The entire data base is available upon request, at cost, in an automated format. Potential users should consult the Chief of Planning, Parks Division, Montana Department of Fish and Game. Users are notified that sole responsibility for use and interpretation of data rests with the user alone.

This plan will be maintained and amended as these data inadequacies are overcome. Persons interested in commenting or participating in the revision process are urged to do so (see "Acknowledgments" in white section for instructions).

## CAMPING AND DAY USE

This section considers the activities of camping in both developed and undeveloped sites, as well as day use and picnicking. Since facilities for these activities can be expensive to provide and sites may also serve as the "bedrooming function" upon which many other recreation activities are based, planning for camping and day use is extremely important.

For the resident, participation in camping in "undeveloped" sites is somewhat greater than participation in camping at "developed" sites. However, in the July, 1976, Statewide Summer Recreation Survey no definition of the terms "developed" and "undeveloped" was suggested to the respondent. Rather, a definition was arrived at by correlating the expressed preference for "developed" and "undeveloped" camping with expressed preference for certain types of sites on a continuum of development from the most primitive to the most elaborate. 41% of the respondents expressed a preference for camping in primitive areas with no development, while another 43% expressed a preference for basic campgrounds no more elaborate than a typical state Fishing Access Site. Only 9% expressed a preference for the more elaborate developments which might be typical of a Montana State Park while only 7% expressed a preference for even more elaborate facilities.

In the Summer Recreation Survey the Montana resident was quite definitive about both the activities and qualities which attract him to camping and day-use areas. Opportunities to rest and relax in pleasant surroundings; fish, walk, hike and hunt offered the most attraction. Opportunities to swim and observe wildlife were also significant attractions. On the other end of the spectrum, opportunities to drive ORV's or ride motorcycles or horses were mentioned infrequently but more often than opportunities to meet people or play group games.

The most attractive environmental qualities were privacy and solitude in scenic, wooded sites near lakes and streams. Least important to the recreationist were "modern" restrooms, safety, boating facilities, "modern" camp units and the availability of many activities.

The conclusion is that for most Montanans camping is more dependent upon the natural environmental quality than upon man created support facilities.

This is not to say, however, that developed areas are not appreciated. Development at major lakes and reservoirs which have a high appeal to Montanans is welcomed. Additionally, while restrooms, boating facilities, modern camp units and security are not the primary factors in selecting a camping area, these services are often expected by the public at the more popular camping areas.

At first glance Montana's ability to supply desirable recreational resources without expensive or elaborate support facilities is a characteristic to be envied by most of the nation. However, this ability is not without its unsatisfactory consequences. Camping and associated dispersed use activities cannot be conducted in massive volumes without adverse impacts on the environment. Even undeveloped camping does not occur randomly in the landscape and it often concentrates around specific high quality resources. In the long run, undeveloped camping may adversely affect fish, wildlife, their habitat and can create an increased potential for wildfires.

Realistically, the decision to provide developed camp units is dependent upon the nature of the resource and the willingness of the people to use the facility while undeveloped camping must be managed in such a fashion as to minimize the adverse environmental impacts.

Since the federal government controls a vast amount of the available resources most desired by the resident as well as a large segment of non-residents, the decision of the state or private sector to expand camping and day-use facilities should be based on an objective analysis of market factors to include the nature of the resource involved, the segment of society to be served and the management goals and the management techniques required to achieve those goals.

There is considerable regional variation in the capability of camping and day-use supplies to serve the demand for camping and day use (Tables I and II). In terms of those providing services (Table I(7)), the federal government appears to have underbuilt in terms of demand for its developed campgrounds and the private sector appears to be overextended. It must be remembered, however, that the principal market of the private sector is apparently the non-resident who is not considered in Table I and that the federal government is the major provider of the undeveloped camping supply. Also contributing to the problem is that some campgrounds have been poorly located and thus seldom used.

The effects of undeveloped camping and dispersed use recreation can produce a conflict between the recreationist and the land manager as well. There is every reason to believe that this conflict will increase in the near future for there is evidence that camping in undeveloped areas will increase. Mobile light-weight equipment facilitates dispersed use activity as do many aspects of recreation agency policy such as increased fees and more stringent rules in developed areas. Overcrowding of

popular developed facilities resulting in user conflict is also a motivating factor. However, the desire for privacy and solitude and the resulting desire to relate directly to the natural landscape appears to be a major factor motivating camping in undeveloped areas.

Managerial solutions to the problem of dispersed use and undeveloped camping and associated activities have not been fully explored. Recent innovations such as the U.S. Forest Service's transportation plans offer some hope for managing dispersed use. There is immediate need for inter-agency cooperation and coordination on research and planning which will identify reasonable managerial responsibilities for dispersed use recreation.

In many ways day-user facilities are subject to the same considerations as for camping facilities. There are, however, conflicts between the camper and day user. Providers of facilities should give more attention to conflicts in their management of recreational resources. Clearer segregation of campers and day users within sites and the devotion of entire sites to either camping or day use are management responses which should be explored in more depth. Overcrowding has also become a major source of conflict requiring innovative site design, land acquisition and new enforcement techniques.

At the present time in most state managed sites, the camper is forced to bear a disproportionate share of the operation and maintenance costs. This is in part a result of the present policy of the Parks Division to use the fee system as a means of recouping as much of the operation and maintenance costs of the state park system as easily as possible. While the 1976 study of the efficacy of the state fee system in northwest Montana indicated an extreme unwillingness of the day user to pay fees as well as a cost-to-return ratio which indicates that collection of day-user fees is prohibitively expensive, every effort should be made to find workable techniques for shifting a greater share of maintenance costs to the day user.

### Goal

As a result of the above considerations the goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for current and future demand for camping and day use anticipated in Table II.

It is anticipated that this goal will be achieved largely through inter- and intra-agency cooperation as well as through site protection, acquisition and improvement.

### Policies

Consequently, the policies of the Montana Department of Fish and Game should be to:

- 1) Undertake substantial development of campgrounds only after all other alternatives have been considered and dismissed.
- 2) Develop camping facilities to best provide for their use and enjoyment while protecting the resource. Development needs shall result from long-range management plans for individual areas.
- 3) Encourage, whenever feasible, the private sector to provide for developed camping areas and services.
- 4) Ensure that land acquisition and subsequent development be conducted only in the light of clearly defined Department policies made operational through developed criteria and long-range management plans.

- 5) Consider alternatives to development including acquisition and development of alternate sites, intensive management, intensive maintenance, and use limits such as "first come, first serve" or reservations.

Uniform and objective implementation of these policies will require research and development of precise and workable methods.

### PROBLEMS

### ALTERNATE STRATEGIES

- |   |   |
|---|---|
| 1. Coordination of efforts on dispersed use camping between federal and state officials is lacking. | 1.a. Establish a federal-state coordinating committee.  |
|   | b. Make better use of Statewide Comprehensive Outdoor Recreation Plan in influencing federal decision making. |
|   | c. Undertake regional cooperative management plans for specific resource areas.                               |
|   | d. Take no action   |
| 2. The current fee collection system at state sites needs evaluation.                               | 2.a. Establish task force to review the fee system and make recommendations.                                  |
|   | b. Secure services of a consultant to evaluate fee system.  |
|   | c. Take no action.  |

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
3. The role of camping in highway rest areas remains controversial.	3.a. Introduce legislation to either prohibit or permit camping in highway rest areas. b. Encourage the Highway Dept. to develop camping areas. c. Parks Program administer sites where camping is allowed. d. Lease sites to the private sector. e. Take no action.	6. Dispersed use camping may be in conflict with the wishes of private landowners.	6.a. Undertake a study to determine the extent of the problem. b. Educate the public on their responsibilities towards private and public land holdings. c. Take no action.
4. Criteria for evaluating the appropriate use at given sites is lacking.	4.a. Establish criteria as a portion of agency policy. b. Establish criteria as a portion of design and development process. c. Utilize more effectively the environmental impact assessment process in deciding appropriate site uses. d. Take no action.	7. Data on non-resident recreationists is incomplete and the aspirations of non-resident recreationists are poorly understood.	7.a. Gather information on non-resident recreational use and behavior. b. Develop state policy on the role of non-resident campers. c. Take no action.
5. Criteria directing design and development concepts are informal, lacking or poorly communicated.	5.a. Establish criteria for design and development as a portion of agency policy b. Establish criteria guiding design and development as a portion of divisional operation. c. Take no action.	8. Criteria for evaluation of potential land acquisition for camping and day use are lacking or informal.	8.a. Establish criteria as a portion of agency policy. b. Establish criteria as a portion of program policy. c. Establish criteria as a portion of each region's policy. d. Take no action.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
9. Day-user /camper conflicts need more management attention.	9.a. Segregate campers and day users within sites. b. Define sites as either day user or camper. c. Periodically zone the type of use permitted. d. Take no action.		c. Increase data collection effort only where direct problems have been identified. d. Take no action.
10. There is a lack of day-use areas close to population centers.	10.a. Undertake study to reveal the extent of the problem and strategies for coping with it. b. Stress acquisition of areas closest to centers of population. c. Try to interest cities and counties through administration of the LWCF in acquiring and developing such areas. d. Take no action.	13. Historically, state recreational lands have tended to be managed for singular purposes thus failing to assure the return of maximum recreational opportunity consistent with the capacity of the resource.	13.a. Increase coordination and cooperation with other state agencies in order to assure that lands of recreational potential are managed to their fullest value. b. Increase emphasis on site and regional management planning in order to assure that all values are considered in making management decisions regarding department administered lands. c. Take no action.
11. Law enforcement in developed camping and day-use areas is inadequate.	11.a. Direct warden effort to areas of greatest need. b. Contract for law enforcement with local government units. c. Take no action.		
12. There is insufficient data on site use.	12.a. Increase survey efforts overall. b. Increase car counter efforts overall.		

(continued)

TABLE I  
Camping and Day Use - Current Conditions

Camping and Day Use - Current Conditions								Supply Distribution (7)								
Developed Camping *		(2)	(3)	(4)	(5)	(6)		Federal Expected	Federal Observed	Difference	State Expected	State Observed	Difference	Private Expected	Private Observed	Difference
F&G	Participation	Resident	Non-resident	Total	Adequacy	Relative										
Region	Rate (1)	Participation	Participation	Participation	Supply	Indicator	Need Indicator									
							Amount/Priority									
State	.8743	643,952	517,558	1,161,510	520	2234	-	93	-	-21	17	18	+1	8	38	+30
R1	.8094	96,005	112,702	208,707	128	1631	\$ 10.27 (5)	82	57	-25	14	18	+4	15	36	+21
R2	.8482	86,179	65,532	151,711	111	1367	\$ 8.61 (6)	85	80	-5	17	26	+9	16	12	-4
R3	.9817	135,575	91,449	226,994	118	1924	\$12.12 (4)	51	33	-18	11	17	+6	11	23	+12
R4	.8957	166,082	202,398	368,480	73	5048	\$31.80 (1)	35	26	-9	7	5	-2	7	18	+11
R5	.9749	108,716	35,701	144,417	49	2947	\$18.56 (2)	14	11	-3	3	2	-1	4	8	+4
R6	.7546	36,926	5,219	42,145	21	2007	\$12.64 (3)	13	9	-4	2	5	+3	5	6	+1
R7	.4753	14,469	4,557	19,026	20	951	\$5.99 (7)									

Undeveloped Camping \*

F&G Region	(1)	(2)	(4)	(5)	(8)
					Amount / Priority
State	.9275	700,689	-	-	\$18.11 (2)
R1	1.0701	126,927	-	-	\$17.81 (4)
R2	1.1723	124,817	-	-	\$18.09 (3)
R3	.9176	126,723	-	-	\$26.57 (1)
R4	1.0042	186,200	-	-	\$12.24 (5)
R5	.7691	85,766	-	-	\$4.25 (6)
R6	.6084	29,772	-	-	\$2.92 (7)
R7	.6729	20,484	-	-	

\* footnotes at end of Table I.



TABLE 1 (Continued)

Day Use (picnicking)

F&G Region	Participation Rate (1)	Resident (2) Participation	Non-resident Participation	Total Participation	Supply (4)	Adequacy Indicator (5)	Relative Need Indicator (6)
							Amount/Priority
State	.8549	632,415	-	-	353	1792	-
R1	1.0362	88,284	-	-	63	1401	\$10.39 (6)
R2	.9303	105,403	-	-	56	1882	\$13.96 (4)
R3	1.0483	120,014	-	-	93	1290	\$ 9.57 (7)
R4	.8745	156,674	-	-	58	2701	\$20.03 (1)
R5	.5281	69,512	-	-	44	1580	\$11.72 (5)
R6	.8468	60,631	-	-	23	2636	\$19.55 (2)
R7	.6880	31,897	-	-	16	1994	\$14.79 (3)

(1) Number of occasions per capita in July, 1976.

(2) July 1976 occasions.

(3) Estimates based on data from the 1973 Montana State Outdoor Recreation Plan.

(4) Publicized sites offering facilities (including private).

(5) Participation ÷ supply.

(6) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.

(7) Expected distribution is derived from resident rate of use facilities under federal, state and private proprietorship.

(8) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to participation.

TABLE II  
Camping and Day Use - Future Conditions

Developed Camping \*

F&G Region	July 1976 (1) Participation	July 1980 Participation	July 1985 Participation	July 1990 Participation	1976 Supply (4)	1990 Adequacy Indicator (5)	1990 (6) Relative Need Indicator Amount / Priority	1976 (6) Relative Need Indicator Amount / Priority
State	1,161,510			1,604,748	502	3197	\$9.78 (5)	\$10.27 (5)
R1	208,707	228,096	240,806	270,067	128	2110	\$8.85 (6)	\$ 8.61 (6)
R2	151,711	165,198	186,680	211,880	111	1909	\$12.52 (3)	\$12.12 (4)
R3	226,994	251,986	284,923	318,608	118	2700	\$33.42 (1)	\$31.80 (1)
R4	368,480	424,010	474,050	526,116	73	7207	\$19.64 (2)	\$18.56 (2)
R5	144,417	162,816	184,782	207,498	49	4235	\$11.60 (4)	\$12.64 (3)
R6	42,145	46,482	49,933	52,542	21	2502	\$ 4.18 (7)	\$ 5.99 (7)
R7	19,026	17,576	17,787	18,037	20	902		

Undeveloped Camping \*

	(1)				(4)	(5)	(6)	(8)
State	700,689			996,677	-	-		
R1	126,927	138,719	146,448	164,243	-	-	\$16.99 (4)	\$18.11 (2)
R2	124,817	135,913	153,587	174,319	-	-	\$18.03 (3)	\$17.81 (4)
R3	126,723	140,675	163,029	180,935	-	-	\$18.72 (2)	\$18.09 (3)
R4	186,200	209,922	238,242	267,532	-	-	\$27.68 (1)	\$26.57 (1)
R5	85,766	96,693	109,738	123,382	-	-	\$12.76 (5)	\$12.24 (5)
R6	29,772	32,836	35,274	37,117	-	-	\$ 3.84 (6)	\$ 4.25 (6)
R7	20,484	18,923	19,150	19,149	-	-	\$ 1.98 (7)	\$ 2.92 (7)

\* footnote at end of Table II

TABLE II (Continued)

Day Use (picnicking)

FLG Region	July, 1976 Participation (1)	July, 1980 Participation	July, 1985 Participation	July, 1990 Participation	1976 Supply (4)	1990 Adequacy Indicator (5)	1990 (6) Relative Need Indicator Amount / Priority		1976 (6) Relative Need Indicator Amount / Priority	
State	632,415									
R1	88,284	96,486	101,862	114,239	63	1813	\$10.33	(6)	\$10.39	(6)
R2	105,403	114,733	129,698	147,206	56	2629	\$14.97	(3)	\$13.96	(4)
R3	120,014	113,228	150,642	168,452	93	1811	\$10.32	(7)	\$ 9.57	(7)
R4	156,674	180,285	201,561	223,699	58	3857	\$21.97	(1)	\$20.03	(1)
R5	69,512	78,368	88,941	99,875	44	2270	\$12.93	(4)	\$11.72	(5)
R6	60,631	66,870	71,836	75,589	23	3286	\$18.72	(2)	\$19.55	(2)
R7	31,897	29,466	29,821	30,238	16	1890	\$10.77	(5)	\$14.79	(3)

(1) Number of occasions per capita in July, 1976.

(2) July 1976 occasions.

(3) Estimates based on data from the 1973 Montana State Outdoor Recreation Plan.

(4) Publicized sites offering facilities (including private).

(5) Participation ÷ supply.

(6) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.

(7) Expected distribution is derived from resident rate of use facilities under federal, state and private proprietorship.

(8) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to participation.



## BOATING

This section considers the role of boating as a part of the Montana outdoor recreation scene. Specifically, river floating, sailing and motorboating are considered (Tables I, II and III).

Much of Montana is abundantly supplied with waters suitable for motorboating, sailing and floating. The July, 1976, Summer Recreation Survey shows that, in terms of popularity, motorboating is most important though both river floating and sailing are gaining in importance faster than the general population growth. Survey data indicate that overall needs for attention to the boating situation are greatest in Fish and Game Regions 5, 4, and 1 respectively. Statewide, however, boaters are facing increasing problems some of which are discussed in the problems and strategies section below.

One of the more important issues that concerns all water-related activities as well as boating is the problem of recreational benefits gained and lost by the development of water impoundment projects. Some impoundments may be partially justified by the recreation opportunities they can make available, while others may in fact destroy recreational resources of more value than they create. It is very important then, especially where the many-faceted activity of "boating" is concerned, to evaluate, individually, realistically and impartially, all future proposals for publicly owned, operated or financed water impoundments.

### Goal

The goal of the Montana Fish and Game Department is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for present and future demand for boating activities anticipated in Table II.

It is assumed that the major responsibility for managing boater activity will continue to rest with the Montana Department of Fish and Game with financial assistance from a number of funds and agencies.

### Policies

The policies of the Montana Department of Fish and Game should be to:

- 1) Scrutinize boating and recreation benefit/cost ratios for proposed water impoundments to assure that realistic values have been used before assuming that such impoundments will either benefit or harm such values.
- 2) Oppose the damming and/or draining of navigable rivers on the basis that it is a detriment to recreation in general.
- 3) Evaluate each water impoundment proposal consistent with "2" above individually on its own merits, regardless of supposed similarities with others.

### PROBLEMS

1. Specific sites serving boaters are periodically overcrowded and some lakes are overused.

### ALTERNATE STRATEGIES

- 1.a. Expand existing sites.
- b. Purchase and develop new sites.
- c. Limit use as appropriate to the size of the water body.
- d. Encourage the development of private marinas where appropriate.

(continued)

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
	<ul style="list-style-type: none"> <li>e. Design for intensive use of selected sites.</li> <li>f. Recognize and accept periodic overcrowding.</li> <li>g. Use site design to limit use as appropriate to the size of the water body.</li> <li>h. Take no Action.</li> </ul>
2. Limited riparian access is a major problem identified by most water oriented recreationists (July, 1976 survey).	<ul style="list-style-type: none"> <li>2.a. Explore and initiate the use of recreation access easements as an alternative to fee simple acquisition.</li> <li>b. Encourage legislation to earmark a portion of the personal property tax on boats for the boating program to include access acquisition.</li> <li>c. Cooperate with federal, state and local agencies to develop all-weather access roads to public waters where soils or other natural features restrict access.</li> <li>d. Pursue agreements with Indian reservations for public recreation access to boatable waters</li> </ul>

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
	<ul style="list-style-type: none"> <li>e. Acquire right-of-ways across private lands to public lands bordering boatable waters.</li> <li>f. Take no action.</li> </ul>
3. Information supporting river floating activities is limited.	<ul style="list-style-type: none"> <li>3.a. Increase planning and management of the State Recreational Waterway System as defined by A.R.M. 12-2.26(1)-S2610.</li> <li>b. Publish standardized floaters guides for appropriate rivers as a portion of planning the State Recreation Waterway System.</li> <li>c. Initiate a project to better quantify and make known the supply of accessible areas.</li> <li>d. Take no action.</li> </ul>
4. Users feel that some floatable rivers are crowded which affects the quality of their experience.	<ul style="list-style-type: none"> <li>4.a. Limit use.</li> <li>b. Publish information to divert use to other rivers.</li> <li>c. Accept intensive use of appropriate rivers and limit use on others.</li> <li>d. Prepare and use river management plans to assist in maintaining experience levels.</li> <li>e. Take no action.</li> </ul>

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
5. Recreational use of some floatable rivers is endangered due to riparian development and water withdrawal.	5.a. Encourage and cooperate with local efforts to limit riparian development. b. Seek water reservations to maintain in-stream flows. c. Seek easements to protect the natural quality of rivers. d. Take no action.	8. User conflicts are common at popular water-oriented areas.	8.a. Zone the use of rivers, lakes and reservoirs if necessary. b. Recommend legislation to set maximum allowable noise levels for all watercraft. c. Increase educational and enforcement efforts by increasing warden-recreationist contact. d. Provide additional water access where appropriate to better distribute users. e. Expand the use of buoys as management tools. f. Consider and minimize user conflicts through innovative site design. g. Take no action.
6. Acquisition of riparian access cannot always be justified on the basis of fishing or hunting values.	6.a. Develop alternate sources of acquisition funds other than fishing and hunting fees. b. Recommend legislation to earmark taxes and registration fees on all boats so the boating program may include site acquisition. c. Take no action.	9. The legal "navigability" of many rivers is unknown, contributing to difficult relations between landowners and recreationists.	9.a. Establish, implement, and enforce existing laws and definition of "navigable." b. Acquire access easements for specific types of recreational uses where appropriate c. Seek a clear and useable definition of "navigable." d. Provide public information on navigability and private property rights.
7. Water safety requirements and programs benefit all boaters but are currently paid for by motorboat registration fees.	7.a. Encourage legislation to extend registration requirements to all vessels. b. Encourage and expand formal water safety education. c. Take no action.		

(continued)

PROBLEMS

ALTERNATE  
STRATEGIES

20

e. Take no action.

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10. The boating potential for Fort Peck Reservoir remains unrealized.

- 10.a. Encourage Congress to clarify recreation management responsibilities and objectives at Fort Peck Reservoir.
  - b. Encourage Congress to provide funds for development and maintenance of boater facilities, including access.
  - c. Seek appropriations from State Legislature for boater facilities.
  - d. Encourage and cooperate with counties, other state agencies, and appropriate federal agencies to provide all-weather access roads to the reservoir perimeter.
  - e. Take no action.
-



TABLE I

21

## Boating - Current Conditions

F&G Region	RIVER FLOATING		SAILING		OTHER (3)		Total Participation All Boating (2)	Supply (4)	Adequacy Indicator (5)	Relative Need Indicator (6)	Amt./Priority
	Participation Rate	Total (2) Participation	Participation Rate	Total (2) Participation	Participation Rate	Total (2) Participation					
State	.2847	201,066	.0683	49,444	.7911	542,310	842,639	172	4,899		
R1	.3339	48,383	.1338	19,388	1.2544	181,769	249,540	62	4,025	\$10.29	(3)
R2	.4192	29,572	.1197	8,445	.8775	61,903	99,920	29	3,446	\$ 8.81	(7)
R3	.4691	50,558	.0542	5,842	.5721	61,658	118,058	31	3,808	\$ 9.74	(4)
R4	.2033	36,531	.0669	11,991	.9347	167,952	216,474	23	9,412	\$24.07	(2)
R5	.2183	24,360	.0261	1,585	.5494	61,307	87,252	8	10,906	\$27.89	(1)
R6	.1039	6,790	.0182	1,189	.6266	40,955	48,934	13	3,764	\$ 9.63	(5)
R7	.1579	4,691	.0338	1,004	.5644	16,766	22,461	6	3,744	\$ 9.57	(6)

TABLE II

## Boating - Future Conditions

F&G Region	Total Boating July, 1976 Participation (1)	July 1980 Participation	July 1985 Participation	July 1990 Participation	1976 Supply (4)	1990 Adequacy Indicator (5)	1990 (6) Relative Need Indicator	1976 (6) Relative Need Indicator
State	842,639			1,144,903	172	6,656	Amt./Priority	Amt./Priority
R1	249,540	272,722	287,919	322,905	62	5,208	\$ 9.88 (4)	\$10.29 (3)
R2	99,920	108,803	122,952	139,548	29	4,812	\$ 9.13 (5)	\$ 8.81 (7)
R3	118,058	131,056	148,186	165,706	31	5,345	\$10.14 (3)	\$ 9.74 (4)
R4	216,474	249,097	278,494	309,082	23	13,438	\$25.49 (2)	\$24.07 (2)
R5	87,252	98,368	111,639	125,363	8	15,670	\$29.73 (1)	\$27.89 (1)
R6	48,934	53,969	57,977	61,006	13	4,692	\$ 8.90 (6)	\$ 9.63 (5)
R7	22,461	20,749	20,999	21,293	6	3,549	\$ 6.73 (7)	\$ 9.57 (6)

(1) Number of occasions per capita in July, 1976.

(2) July, 1976, occasions consumed within the region.

(3) Assumed to be largely motorboating.

(4) Publicized facilities offering services to boaters (including private).

(5) Participation ÷ supply.

(6) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.

TABLE III

Relative importance of several boating activities

Activity		Total Activity
1. Motorboating	=	70.28%
2. Floating	=	23.86%
3. Sailing	=	5.87%

This section considers the role of beaches and swimming in Montana (Tables I and II). Swimming related activities are important summer activities particularly among the younger portion of the population. The 1976 Recreational Survey of the Handicapped further indicates that swimming has a great potential for serving the severely handicapped, particularly developmentally disabled youth.

Despite this interest and the fact that Montana's water resources are fresh, clean and clear, developed swimming beaches in Montana are rather limited. This appears to result from fundamental difficulties with beach development in Montana. Swimming seasons are short and water temperatures are seldom in the comfortable range. Responsible federal, state and local agencies should base decisions to construct or expand beach facilities on criteria which recognize these environmental factors.

The 1976 Statewide Summer Recreation Survey shows that Fish and Game Regions 4, 5 and 6 are particularly high priority areas. On a local basis, expansion of existing facilities rather than construction of new facilities may be the most practical solution. Certainly highest priority for new construction or expansion of existing beach areas should be on multi-use recreation sites close to population centers.

#### Goal

The goal of the Montana Department of Fish and Game is to:

Provide for the foreseeable July demand displayed in Table II for beach swimming through resource management to include regulation

provision of information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements.

It is anticipated that in achieving this goal expansion of existing facilities will be preferred over new development, where appropriate and emphasis will be on high density multi-use sites close to major population centers

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
1. The system of deciding to develop beach swimming areas could be improved.	1.a. Establish minimum environmental standards to guide the decision to establish beach swimming areas. b. Establish a minimum criteria of "need" to guide the decision to establish beach swimming areas. c. Take no action.
2. There is evidence of conflict between swimmers and boaters.	2.a. Expand efforts to properly mark swimming areas. b. Invest in additional safety equipment and enforcement personnel. c. Modify beach fronts to accommodate use while separating conflicting users. d. Take no action.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
j. Safe non-urban swimming opportunities do not exist or are not generally known to the public.	<ul style="list-style-type: none"><li>3.a. List swimming in information literature as a major attraction at sites suitable and developed for this activity.</li><li>b. Suitable sites should be developed for a safe swimming opportunity.</li><li>c. An inventory of suitable sites should be made with priorities for development.</li><li>d. Take no action.</li></ul>
4. The swimming season is shortened due to climatic and water conditions.	<ul style="list-style-type: none"><li>4.a. Consider heavy development in areas of high demand to create shallow warm water lagoons where water temperatures would otherwise be uncomfortable.</li><li>b. Carefully consider all site conditions before encouraging development of swimming facilities.</li><li>c. Take no action.</li></ul>

TABLE I  
Non-Urban Swimming - Current Conditions

F&G Region	Participation Rate (1)	Total Participation	Supply	Adequacy Indicator (4)	Relative Need Indicator (5)
		(2)	(3)		Amount/Priority
State	.7001	516,302	151	3,419	
R1	1.2125	103,305	52	1,987	\$6.62 (7)
R2	.9366	106,117	35	3,032	\$10.10 (5)
R3	.4848	57,352	24	2,390	\$7.96 (6)
R4	.7345	131,592	16	8,224	\$27.38 (1)
R5	.3821	50,953	9	5,661	\$18.85 (2)
R6	.6069	43,454	9	4,828	\$16.08 (3)
R7	.5075	23,529	6	3,922	\$13.06 (4)

TABLE II  
Non-Urban Swimming - Future Conditions

F&G Region	July 1976 Participation	July 1980 Participation	July 1985 Participation	July 1990 Total Participation	1976 Supply	1990(4) Adequacy Indicator	1990(5) Relative Need Indicator	1976 (5) Relative Need Indicator
					(3)			
State	516,302			699,954	151	4,635		
R1	103,305	112,902	119,193	133,677	52	2,571	\$6.46 (7)	\$6.62 (7)
R2	106,117	115,551	130,577	148,203	35	4,234	\$10.65 (4)	\$10.10 (5)
R3	57,352	63,666	71,988	80,499	24	3,354	\$8.43 (6)	\$7.96 (6)
R4	131,592	151,423	169,293	187,887	16	11,743	\$29.53 (1)	\$27.38 (1)
R5	50,953	57,444	65,194	73,209	9	8,134	\$20.45 (2)	\$18.85 (2)
R6	43,454	47,925	51,484	54,174	9	6,019	\$15.13 (3)	\$16.08 (3)
R7	23,529	21,736	21,997	22,305	6	3,717	\$9.35 (5)	\$13.06 (4)

(1) Number of occasions per capita in February, 1977.

(2) February, 1977, occasions consumed within the region.

(3) Active areas providing downhill skiing.

(4) Participation ÷ supply.

(5) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.



## NON-MOTORIZED TRAIL ACTIVITIES

This section considers the non-motorized trail type activities of backpacking, horseback riding and several activities not necessarily dependent upon trails per se--recreational use of horses, rural area bicycling and walking. (See Tables I and II).

Overall, trail and trail type activities are exceedingly important to Montanans and may be expected to increase significantly in the future. Table II presents future demand projected on the basis of expected population growth. There is evidence that the popularity of trail type activity is growing faster than the population (Forest Recreation Symposium Proceedings, SUNY College of Forestry, Syracuse, New York, October 12-14, 1971, p. 116).

Based on U.S. Forest Service transportation systems records it appears that Montana possesses an abundant supply of trails. For example, in Broadwater county there are 141.2 miles of trails. This amounts to 199 yards per square mile of the county or 99 yards per resident. If only the 62.1 miles of recreational trails are considered, there are still 88 yards of trail per square mile of county or 44 yards per resident. This compares very favorably with the 100,000 miles of trails in the U.S. (BOR 1966) which average about 50 yards per square mile, Alaska aside, and less than 1 yard per citizen.

While this type of supply-demand analysis indicates abundant supply, it hides other facts which indicate that the supply is not so impressive. While over half of all U.S. trail mileage is on National Forests, the mileage of those trails has dropped over one-third since 1946 (Forest Recreation Symposium, 1971). Furthermore, many of the remaining trails are relic fire protection trails not designed for recreational use. Logging and resource extraction roads have replaced many of these and have obliterated others or cut them into undesirable and unmarked segments. Information on trail-

head facilities and trail conditions is also lacking and few trails are linked to major population centers. Public information concerning campgrounds indicates that only 108 serve as trailheads and only 37 serve as trailheads for horses.

Montana's trails are unevenly distributed as well. West of the continental divide Montana is abundantly supplied with trails while they are noticeably lacking in the eastern two-thirds of the state. While many national trail proposals transect Montana, the state is not sufficiently close to the nation's population centers to merit full development of these nationally significant resources much less more mundane resources.

The July, 1976 State Summer Recreation Survey also indicates that there is considerable variation in regional needs for different types of trails as well. With such complications, it is exceedingly difficult to optimize benefits to all trail users.

### The Recreational Horse

Previous Montana State Outdoor Recreation Plans have failed to identify the role of recreational horse ownership in Montana. Tables I and II indicate the considerable importance of the use of horses for recreation. Also limited information from the 1973 Montana State Outdoor Recreation Plan indicates peak horse use in the spring and fall rather than in July. Despite the fact that horses are taxed as personal property in Montana, there is virtually no reliable data on the number or value of recreational horses in Montana. Subjectively, a drive about the suburbs of any urban areas suggests an importance which has yet to be appreciated. A number of realtors have suggested that the desire for recreational horse ownership is an important variable explaining "urban to rural migration" and consequent rural subdivision.

The future of recreational horse ownership in Montana is uncertain, however. Horse owners have begun to complain that rules on individual, group and commercial horse use on public lands are difficult to find, regionally inconsistent and differentially enforced in the field. Recreational use of horses near urban areas is threatened by urban and suburban development and local planning which too frequently fails to recognize open space and trail values of any type much less those upon which recreational horse use is dependent. These conditions point to a future where recreational enjoyment of the horse will be increasingly restricted to large public landholdings or riding academies.

#### Goal

The goal of the Montana Department of Fish and Game is to:

Provide for the current and future demand displayed in Table II for non-motorized trail activities through resource management to include regulation, provision of information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements.

In light of the suggested policies below, this goal must be met by emphasizing regulation, information provision and inter- and intra-agency cooperation above site protection, land acquisition and capital improvement. The main reason for these policies is that the Montana Department of Fish and Game controls relatively few resources amenable to trail-type developments in comparison with other public land managing agencies. While the Department will engage in capital development of trail facilities where and when appropriate on Department lands, most existing trails and the necessary resources for trail development are already controlled by, and consequently the responsibility of other agencies (Table III).

#### Policies

In light of this discussion, the policies of the Montana Department of Fish and Game with respect to non-motorized trail activities should be to:

- 1) Commend the U.S. Forest Service for its excellent efforts in trail inventories and transportation planning.
- 2) Recommend that the U.S. Forest Service set priorities for trail maintenance, proper maintenance levels be determined, and adequate funds for a proper maintenance program be requested.
- 3) Recommend that increased efforts be made to provide the public with appropriate and up-to-date information concerning trail resources.
- 4) Recommend federal, state and local cooperation in identifying and linking established trailheads to urban areas. The Department, where appropriate, may make LWCF money available to local sponsors of such trailheads.
- 5) Encourage the development of recreational trails, bikeways, bridle paths and walkways in and near Montana's cities and towns. The Department, where appropriate, may make LWCF money available for such facilities.
- 6) Encourage implementation in Montana of the federal bikeway programs specified in Section 124, 87 Statute 262 and Section 119, 88 Statute 2288 by the Montana Highway Department in accordance with its Bikeway Policy Statement of January, 1974.



PROBLEMSALTERNATE  
STRATEGIES

7) Recommend federal, state and local cooperation in the evaluation of trails within the state for improving their diversity, variety, recreational quality and accessibility by respective public agencies.

8) Encourage railroads and public recreation agencies to cooperate in converting abandoned railroad right-of-ways to recreational trails in accordance with Section 809 of the Railroad Revitalization and Regulatory Reform Act of 1976 (PL 94-210) and the Land and Water Conservation Fund program.

2. Recreational trails, bike-ways, bridle paths and walkways are lacking near urban areas.

2.a. Encourage cities and counties to plan for and submit LWCF projects providing these facilities.

b. Encourage federal-state cooperation in identifying and developing linking trails.

c. Encourage and assist cities and counties in utilizing and developing utility corridors and right-of-ways for recreational trail uses.

d. Take no action.

PROBLEMSALTERNATE  
STRATEGIES

1. The regional distribution of trails heavily favors Western Montana.

1.a. Inventory potential trail locations and develop trails.

b. Encourage federal agencies to inventory and develop trails.

c. Encourage implementation, development and management of National Recreation, Scenic and/or Historic Trails in Montana east of the continental divide.

d. Take no action.

3. Public horseback riding facilities are lacking near urban areas.

3.a. Recommend legislation to earmark a percent of the personal property tax on horses for equestrian facilities.

b. Encourage cities and counties to submit LWCF projects which provide equestrian facilities.

c. Encourage the U.S. Forest Service to develop and maintain appropriate trails, including clarifying rules and developing trailheads.

(continued)

ALTERNATE  
STRATEGIES

PROBLEMS

- |   |   |
|---|---|
|   | <ul style="list-style-type: none"> <li>d. Provide information to equestrian groups on sources of funds and public agency responsibilities for providing horseback riding facilities.</li> <li>e. Take no action.</li> </ul>   |
| 4. The supply of recreational trails by user type is not adequately quantified. | <ul style="list-style-type: none"> <li>4.a. Initiate a project to better quantify and describe trails by type of use intended and designed for.</li> <li>b. Cooperate with the U.S. Forest Service to provide better public information on trail standards and use.</li> <li>c. Develop and publish a standardized up-to-date inventory of public trails and trailhead facilities.</li> <li>d. Take no action.</li> </ul> |
| 5. Conflicts occur on trails between different types of users.                  | <ul style="list-style-type: none"> <li>5.a. Reduce conflicts by not maintaining trails. Let users maintain to their own standards based on their use of the trail.</li> </ul>   |

PROBLEMS

ALTERNATE  
STRATEGIES

- b. Encourage land managers to limit use as appropriate to reduce conflicts.
- c. Encourage land managers to develop and to designate trails for specific user types.
- d. Publish information to encourage specific uses of appropriate trails.
- e. Take no action.

TABLE I  
Non-motorized Trail Activities - Current Conditions

Backpacking \*

F&G Region	Participation Rate (1)	Total Participation (2)	Supply (4)	Adequacy Indicator (5)	Relative Need Indicator (6)
Amount / Priority					
State	.3658	272,457	108	2,523	
R1	.4931	51,868	27	1,921	\$10.50 (5)
R2	.6122	66,070	27	2,447	\$12.29 (4)
R3	.3927	55,232	20	2,762	\$15.10 (2)
R4	.2762	48,143	21	2,293	\$12.54 (3)
R5	.3702	43,107	7	6,158	\$33.67 (1)
R6	.0831	3,193	3	1,064	\$5.82 (7)
R7	.1504	4,844	3	1,615	\$8.83 (6)

Horseback riding - Trails \*

	(1)	(3)	(4)	(5)	(6)
State	.1402	103,403	37	2,795	
R1	.1966	16,750	2	8,375	\$28.89 (1)
R2	.2018	22,864	18	1,270	\$4.38 (7)
R3	.1220	14,432	4	3,608	\$12.45 (4)
R4	.1430	25,620	8	3,203	\$11.05 (5)
R5	.1142	15,032	2	7,516	\$25.93 (2)
R6	.0701	5,019	1	5,019	\$17.31 (3)
R7	.0795	3,686	2	1,843	\$6.36 (6)

\* footnotes at end of Table II

TABLE I (Continued)

Horseback riding - Other Than Trails \*

(1)		(3)	(7)			
					Amount /	Priority
State	.2011	150,254	-	-	\$13.08	(5)
R1	.2306	19,647	-	-	\$13.86	(4)
R2	.1838	20,825	-	-	\$18.72	(2)
R3	.2378	28,132	-	-	\$23.02	(1)
R4	.1931	34,595	-	-	\$14.99	(3)
R5	.1711	22,521	-	-	\$9.71	(6)
R6	.2037	14,585	-	-	\$6.62	(7)
R7	.2146	9,949	-	-		

Bicycling \*

(1)		(3)	(7)			
State	.2260	168,334	-	-	\$12.76	(4)
R1	.2522	21,487	-	-	\$22.37	(1)
R2	.3323	37,650	-	-	\$16.77	(3)
R3	.2386	28,226	-	-	\$19.82	(2)
R4	.1862	33,359	-	-	\$10.78	(6)
R5	.1378	18,138	-	-	\$11.96	(5)
R6	.2813	20,141	-	-	\$5.54	(7)
R7	.2030	9,333	-	-		

\* footnotes at end of Table II

TABLE I (Continued)

<u>Walking</u> *						
	(1)	(3)			(6)	
State	.7484	556,251	-	-		
R1	.8498	72,403	-	-	\$13.02	(5)
R2	.9923	112,427	-	-	\$20.21	(2)
R3	.8765	103,690	-	-	\$18.64	(3)
R4	.7288	130,570	-	-	\$23.47	(1)
R5	.5737	75,514	-	-	\$13.58	(4)
R6	.5544	39,695	-	-	\$7.14	(6)
R7	.4735	21,952	-	-	\$3.95	(7)

\* footnotes at end of Table II

TABLE II  
Non-motorized Trail Activities - Future Conditions

Backpacking \*

Region	July 1976 Participation (1)	July 1980 Participation	July 1985 Participation	July 1990 Participation	1976 Supply (4)	1990 Adequacy Indicator (5)	1990 (6) Relative Need Indicator	1976 (6) Relative Need Indicator
State	272,457			376,162	108	3,483	Amt./Priority	Amt./Priority
R1	51,868	56,867	59,847	67,117	27	2,486	\$10.04 (5)	\$10.50 (5)
R2	66,070	71,944	81,299	92,273	27	3,418	\$13.81 (3)	\$12.29 (4)
R3	55,232	61,313	69,327	77,524	20	3,876	\$15.65 (2)	\$15.10 (2)
R4	48,143	55,398	61,936	68,739	21	3,273	\$13.22 (4)	\$12.54 (3)
R5	43,107	48,599	55,155	61,936	7	8,848	\$35.74 (1)	\$33.67 (1)
R6	3,193	3,522	3,783	3,981	3	1,327	\$5.36 (7)	\$5.82 (7)
R7	4,844	4,475	4,529	4,529	3	1,531	\$6.18 (6)	\$8.83 (6)

Horseback riding - Trails \*

State	103,403			141,965	37	3,837		
R1	16,750	18,306	19,326	21,674	2	10,837	\$26.34 (1)	\$28.89 (1)
R2	22,864	24,897	28,134	31,932	18	1,774	\$4.31 (7)	\$4.38 (7)
R3	14,432	16,021	18,115	20,257	4	5,064	\$12.31 (4)	\$12.45 (4)
R4	25,620	29,481	32,960	36,580	8	4,572	\$11.11 (5)	\$11.05 (5)
R5	15,032	16,947	19,233	21,598	2	10,799	\$26.25 (2)	\$25.93 (2)
R6	5,019	5,335	5,947	6,257	1	6,257	\$15.21 (3)	\$17.31 (3)
R7	3,686	3,573	3,634	3,667	2	1,834	\$4.46 (6)	\$6.36 (6)

\* footnotes at end of Table II

TABLE II (Continued)

Horseback riding - Other Than Trails

F&G Region	July 1976 (1) Participation	July 1980 Participation	July 1985 Participation	July 1990 Participation	(4) 1976 Supply	1990 (5) Adequacy Indicator	1990 (6) Relative Need Indicator	1976 (6) Relative Need Indicator
							Amt./Priority	Amt./Priority
State	150,254			201,224		-	\$12.63 (5)	\$13.08 (5)
R1	19,647	21,472	22,669	25,423	-	-	\$13.39 (4)	\$13.86 (4)
R2	20,825	22,676	25,625	26,948	-	-	\$19.62 (2)	\$18.72 (2)
R3	28,132	31,229	35,311	39,486	-	-	\$24.55 (1)	\$23.02 (1)
R4	34,595	39,808	44,506	49,394	-	-	\$16.08 (3)	\$14.99 (3)
R5	22,521	25,390	28,816	32,358	-	-	\$9.04 (6)	\$9.71 (6)
R6	14,585	16,086	17,280	18,183	-	-	\$4.69 (7)	\$6.62 (7)
R7	9,949	9,191	9,301	9,432	-	-		

Bicycling

				227,653				
State	168,334			27,804	-	-	\$12.21 (4)	\$12.76 (4)
R1	21,487	23,483	24,792	52,582	-	-	\$23.10 (1)	\$22.37 (1)
R2	37,650	40,997	46,328	39,618	-	-	\$17.40 (3)	\$16.77 (3)
R3	28,226	31,334	35,429	47,630	-	-	\$20.92 (2)	\$19.82 (2)
R4	33,359	38,386	42,916	26,061	-	-	\$11.45 (5)	\$10.78 (6)
R5	18,138	20,449	23,208	25,110	-	-	\$11.03 (6)	\$11.96 (5)
R6	20,141	22,214	23,863	8,848	-	-	\$3.89 (7)	\$5.54 (7)
R7	9,333	8,622	8,725					

Walking

				782,405				
State	556,251			100,159	-	-	\$12.80 (5)	\$13.02 (5)
R1	72,403	84,594	89,308	170,982	-	-	\$21.85 (2)	\$20.21 (2)
R2	112,427	122,421	150,646	145,539	-	-	\$18.60 (3)	\$18.60 (3)
R3	103,690	115,106	130,152	186,428	-	-	\$23.83 (1)	\$23.47 (1)
R4	130,570	150,247	167,978	108,499	-	-	\$13.87 (4)	\$13.58 (4)
R5	75,514	85,134	96,620	49,988	-	-	\$6.39 (6)	\$7.14 (6)
R6	39,695	43,780	47,031	20,810	-	-	\$2.66 (7)	\$3.95 (7)
R7	21,952	20,279	20,523					

- (1) Number of occasions per capita in July, 1976. (6) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.
- (2) July, 1976, occasions consumed within the region. (7) Relative need indicator = the desirable regional distribution of \$100 if the goal of management is to distribute resources in proportion to participation.
- (3) July, 1976, occasions produced within the region.
- (4) Publicized trailheads.
- (5) Participation ÷ supply.

TABLE III

## Relative Importance of Several Trail Activities, 1976

<u>Activity</u>	<u>Relative Participation</u>	<u>Dominant Responsibility</u>
1. Walking - non urban	- 44.48%	Federal, State, Local
2. Backpacking	- 21.78%	Federal
3. Bicycling - non urban	- 13.46%	State Highway Department, Local
4. Horseback - other than trails	- 12.01%	Local, Private
5. Horseback - trail	- 8.27%	Federal, Private
	100%	



## OFF-HIGHWAY VEHICLE RECREATION

This section analyzes the current and future role of off-highway vehicle recreation in Montana. The term of "off-highway vehicle" or OHV best describes this type of recreation because the predominant use of these motorized vehicles takes place on established dirt roads, jeep trails and other trails off of paved roads. This definition also encompasses "off-road vehicle" or ORV recreation which takes place off of paved, dirt or other roads or trails. Specifically addressed in this section are four-wheel drive vehicles and motorcycles.

Off-highway vehicle recreation including the use of off-road vehicles is possibly one of the most extensive recreational activities taking place on our public lands today and all indications are that it will continue to grow at an increasingly rapid rate. However, it is also the most emotional, subjective, and misunderstood of all activities. It has been the subject of much controversy charged with opinions and supported with few facts. A simple answer for the OHV opponent is to ban the vehicles everywhere; while many OHV enthusiasts believe that all public lands should be open for their use.

This section attempts to provide a better understanding of the situation and to suggest alternatives which the Montana Department of Fish and Game might pursue to better carry out its responsibility to provide safe, accessible, high quality outdoor recreation experiences.

There are basically three recreational uses for these vehicles: (1) exhilaration and excitement derived from the physical handling of the equipment, (2) participation in competitive events, and (3) use of the vehicles as a means of transportation to see and experience the outdoors, usually on established paths or corridors. It is also known that many OHV users are younger adults. For example, a 1970 Gallup poll showed that the median age of all motorcycle owners was 24 years and over a third

had not yet graduated from high school. Furthermore, statewide surveys in Montana in 1971 indicate that recreation use of OHVs peaks in the spring and fall when many other outdoor recreational activities are tapering off.

OHV use has its beneficial and adverse impacts. The benefits are obvious to millions of participants. So obvious, unfortunately, that too little effort has been made to gather factual support for the sport rather than philosophy.

On the other hand, most complaints by opponents are easily communicated to non-users since they are based on such recognizable impacts as noise and soil erosion. Noise is the most irritating and most complained about impact. Potential soil erosion is also a concern. While individual vehicles may do only a little damage, the cumulative effect of many may be large and not easily calculated. The resulting siltation of water courses is also a concern. Other negative aspects may include poaching, dust created by much activity, and the careless use of OHVs leading to vandalism, littering, wildlife harassment, the destruction of cultural resources, and danger to the user.

All this points to a need for proper planning and management for OHVs. There is a greater need for communication, cooperation and coordination between federal, state, other land managing entities and user groups. One means of effecting this coordination can be through the use of the federal "off-road vehicle plans" as required by Executive Order 11644 of February 8, 1972. Provisions for approved roads and trails should be made, possibly consisting of zoned networks of established roads and trails which are buffered and separated from other incompatible recreational uses. Possibilities include

unused farm, logging or mining roads, abandoned railroad right-of-ways, utility corridors and fire lanes.

The major need is for suitable riding areas close to population centers where participants can expend their energies without interfering with others.

#### Goal

It is recognized that off-highway recreational vehicles provide a legitimate form of recreation which presents both problems and opportunities. Consequently, the goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for the present and future July demand for off-highway vehicle recreation displayed on Tables I and II and associated spring and fall participation peaks.

For the foreseeable future, the management emphasis is expected to be on regulation, information, inter- and intra-agency cooperation and site protection, with possible future emphasis on land acquisition and capital improvements. The use of LWCF monies by local governments to acquire land and provide facilities for off-highway vehicles is and will continue to be encouraged.

#### Policies

The policies of the Montana Department of Fish and Game should be to:

- 1) Cooperate with federal agencies when planning for off-highway vehicles.
- 2) Recognize that the major responsibility for managing public land for off-highway vehicles rests with the federal government.

- 3) Identify and mark appropriate roads and trails on Department lands as to their suitability for off-highway vehicle recreation.

#### PROBLEMS

1. Federal and state funds are inadequate for a viable off-highway vehicle management program.

#### ALTERNATE STRATEGIES

- 1.a. Seek legislation earmarking a portion of the federal and state fuel and/or property taxes for management of recreational vehicles.
- b. Seek legislation to tax recreational vehicles at time of purchase and/or registration for recreational management programs.
- c. Seek legislation to tax recreational vehicles at the point of production or import and add this to the LWCF.
- d. Seek cooperative agreements with other appropriate agencies where such agreements can make better use of limited off-highway management funds.
- e. Take no action.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
2. Off-road vehicular recreation is a consumer of land resources, and as a result adverse impacts on other recreationists easily result from off-highway activities.	2.a. As necessary zone selected areas for appropriate off-highway vehicle use. b. Close appropriate public lands to off-road vehicles. c. Where appropriate limit vehicles to established roads only. d. Provide "play areas." e. Take no action.
3. Vehicular recreationists are unaware of the effects of their activities upon others.	3.a. Provide information and education programs. b. Encourage user organizations to educate vehicle users. c. Take no action
4. There is a lack of uniformity in off-highway vehicle regulations which is causing confusion among off-highway vehicle users and administrative agencies.	4.a. Seek federal and state laws and regulations which are uniform and comprehensible. b. Coordinate with user groups in determining laws which should be changed. c. Take no action.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
5. Some public lands are oversupplied with vehicular access and some are undersupplied.	5.a. Enhance and accelerate federal transportation planning. b. Close roads where appropriate. c. State and/or federal agencies purchase and develop access where appropriate. d. Take no action.
6. OHV's may be excessively noisy, creating adverse impacts on operators, other recreationists, and wildlife.	6.a. Provide information and education program for operators. b. Zone use of OHV's. c. Provide play areas. d. Establish and enforce maximum noise standards for all OHV's. e. Cooperate with appropriate federal, state and local agencies in establishing and enforcing maximum noise standards. f. Take no action.

TABLE I  
Off-highway Vehicle Recreation- Current Conditions

4-wheel driving

F&G Region	Participation Rate (1)	Total Participation (2)	Supply	Adequacy Indicator	Relative Need Indicator (3) Amount / Priority
State	.4650	346,796	-	-	
R1	.4164	35,477	-	-	\$10.23 (5)
R2	.6998	79,287	-	-	\$22.86 (1)
R3	.6616	78,267	-	-	\$22.57 (2)
R4	.4078	73,061	-	-	\$21.07 (3)
R5	.3421	45,030	-	-	\$12.98 (4)
R6	.3003	21,501	-	-	\$6.20 (6)
R7	.3057	14,173	-	-	\$4.09 (7)

Motorcycling

	(1)	(2)			(3)
State	.4159	308,768	-	-	
R1	.5043	42,966	-	-	\$13.92 (4)
R2	.6181	70,031	-	-	\$22.68 (1)
R3	.4932	58,346	-	-	\$18.90 (3)
R4	.3625	64,945	-	-	\$21.03 (2)
R5	.2303	30,314	-	-	\$9.82 (5)
R6	.3639	26,055	-	-	\$8.44 (6)
R7	.3475	16,111	-	-	\$5.22 (7)

(1) Number of occasions per capita in July, 1976.

(2) July, 1976, occasions produced within the region.

(3) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to participation.

TABLE II

41

## Off-highway Vehicle Recreation - Future Conditions

							(2)	(2)
4-wheel driving							1990	1976
F&G	July 1976 (1)	July 1980	July 1985	July 1990	Supply	Adequacy	Relative	Relative
Region	Participation	Participation	Participation	Participation		Indicator	Need	Need
							Indicator	Indicator
State	346,796			475,751	-	-	Amt./Priority	Amt./Priority
R1	35,477	38,773	40,933	45,907	-	-	\$9.65 (5)	\$10.23 (5)
R2	79,287	86,336	97,563	110,732	-	-	\$23.28 (1)	\$22.86 (1)
R3	78,267	86,884	98,241	109,856	-	-	\$23.09 (2)	\$22.57 (2)
R4	73,061	84,071	93,993	104,316	-	-	\$21.93 (3)	\$21.07 (3)
R5	45,030	50,767	57,616	64,699	-	-	\$13.60 (4)	\$12.98 (4)
R6	21,501	23,713	25,474	26,805	-	-	\$5.63 (6)	\$6.20 (6)
R7	14,173	13,093	13,250	13,436	-	-	\$2.82 (7)	\$4.09 (7)
Motorcycling								
	(1)						(2)	(2)
State	308,768			419,336	-	-		
R1	42,966	46,958	49,574	55,598	-	-	\$13.26 (4)	\$13.92 (4)
R2	70,031	76,257	86,173	97,805	-	-	\$23.32 (1)	\$22.68 (1)
R3	58,346	64,770	73,236	81,894	-	-	\$19.53 (3)	\$18.90 (3)
R4	64,945	74,732	83,552	92,728	-	-	\$22.11 (2)	\$21.03 (2)
R5	30,314	34,176	38,787	43,555	-	-	\$10.39 (5)	\$9.82 (5)
R6	26,055	28,736	30,870	32,483	-	-	\$7.75 (6)	\$8.44 (6)
R7	16,111	14,883	15,062	15,273	-	-	\$3.64 (7)	\$5.22 (7)

(1) July, 1976, occasions produced within the region.

(2) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to participation.



## SITE ORIENTED WINTER ACTIVITIES

This section considers the role of site oriented winter recreation, particularly ice skating on natural water bodies, ice skating on man-made rinks and sledding, tobogganing and tubing (Tables I & II).

Montana is abundantly supplied with winter, a winter which is often cold and dry but nevertheless can be exciting and exhilarating. Certainly, the availability of winter sports and outdoor recreation activities contributes to a pleasing and exhilarating winter experience. Under these conditions, it would be thought that Montana communities would possess a wide variety of site-oriented winter sports facilities. Such is not necessarily the case in part because financially hard pressed communities have not been inclined to invest in winter recreational facilities and in part because winter recreational facilities are difficult to manage due to the extreme variability of Montana's winter weather.

For the foreseeable future, however, the major responsibility for the supply and management of site oriented winter recreation facilities will rest with Montana's local governments. With this in mind the Department of Fish and Game, in awarding LWCF monies to local governments should give priority to projects which provide for multi-seasonal use either by the inherent nature of the project or through innovative management and programming.

While major responsibility for site oriented winter recreation may rest with local government, all agencies, the Department of Fish and Game included, should seek to manage their recreation areas so that, within reason, "off-season" uses are maximized. This is not as easily done as said. The Montana state park system evolved from a concern with

the economic benefit provided from tourism and only recently has the park system begun to be viewed as a social service which enhances the day to day quality of life in Montana. Concern with tourism placed emphasis on traditional "summer" activities so that funding for all-season programs close to where people live is currently weak at best. Managers are also inexperienced at providing for winter activities with the resources controlled by the state park system.

Nonetheless, park system resources should be reviewed for their ability to provide for winter recreation. Minor investment and experimentation within the limits of current funding may be all that is required to manage these resources for winter recreation. Such activity might include snow removal and ice clearing at popular state park system sites near urban areas. Such experiments, however, should be carefully monitored with respect to costs and benefits. No site should be acquired with the intent of providing specifically for winter recreation until considerably more experience has been gained in the management of resources for winter recreation.

### Goal

The goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition, and capital improvements for current and future demand for site oriented winter recreation.

Initially it is expected that this goal will be achieved through regulation, information provision, LWCF Grant

Administration and inter- and intra-agency cooperation. Site enhancement and protection possibly will become more important as experience is gained and funds become available.

### Policies

The policies of the Montana Department of Fish and Game should be to:

- 1) Manage the allocation of LWCF monies to local governments so that projects maximize multi-seasonal use.
- 2) Review existing state park system sites for their ability to provide winter recreation and simultaneously begin experimentation within the limits of current funds in managing these resources to provide winter recreation opportunities.
- 3) Carefully review all experiments conducted under 2) above for costs, benefits and the adequacy of management techniques.
- 4) Seek adequate funding for winter recreation management as 3) above is accomplished.
- 5) Avoid acquisition of sites on the basis of providing winter recreation as the major output until 4) above is accomplished.

### PROBLEMS

1. There is a lack of areas and facilities for site oriented winter activities in and adjacent to urban areas.

### ALTERNATE STRATEGIES

- 1.a. Encourage communities to plan for and submit LWCF projects to provide areas and facilities.
  - b. Encourage communities to consider these winter activities in park and open space master planning efforts.
  - c. Provide maintenance funds for these activities on Department lands near urban areas if compatible with primary management objectives.
  - d. Develop technical assistance capacity and make it available to local governments.
  - e. Take no action.
- 
- 2.a. Provide multiple use facilities such as warming huts at popular fishing access sites near urban areas.
  - b. Provide for snow removal in selected areas at popular fishing access sites near urban areas.
  - c. Take no action.

2. Popular fishing access sites near urban areas have not been adequately developed or maintained to enhance their use for other compatible recreational activities during winter.



PROBLEMSALTERNATE  
STRATEGIES

- |  |   |
|--|---|
| 3. Lack of snow and frequent chinook type conditions limit the use season for these activities in urban areas. | 3.a. Encourage communities to take advantage of natural features (frost pockets, north facing hills, etc.) when planning for winter activities.<br><br>b. Encourage communities to acquire or lease and maintain sites which maximize winter recreation opportunity.<br><br>c. Encourage communities to submit LWCF projects for sheltered ice rinks.<br><br>d. Develop technical assistance capacity and make it available to local governments.<br><br>e. Take no action. |
| <hr/>  |   |
| 4. Criteria for selection and design of winter recreation sites are lacking or poorly communicated.            | 4.a. Initiate a study of selection and design concepts to develop standards adaptable to local situations<br><br>b. Take no action.   |
-

TABLE I  
Site Oriented Winter Activities - Current Conditions

## Ice Skating on Natural Water Bodies \*

F&G Region	February Participation Rate (1)	Total Participation (2)	Supply	Adequacy Indicator	Relative Need Indicator (3)
					Amt. / Priority
State	.1555	115,964			
R1	.3531	30,084	-	-	\$25.94 (1)
R2	.1567	17,754	-	-	\$15.31 (3)
R3	.1120	13,250	-	-	\$11.43 (5)
R4	.1141	20,442	-	-	\$17.63 (2)
R5	.0707	10,491	-	-	\$ 9.05 (6)
R6	.2320	16,611	-	-	\$14.32 (4)
R7	.1712	7,332	-	-	\$ 6.32 (7)

## Ice Skating on Man Made Rinks \*

F&G Region	February Participation Rate (1)	February Total Participation (2)	Supply	Adequacy Indicator	Relative Need Indicator (3)
					Amt. / Priority
State		154,476	-	-	
R1	.2062	17,568	-	-	\$11.39 (6)
R2	.2038	23,090	-	-	\$14.97 (3)
R3	.3249	48,436	-	-	\$24.91 (1)
R4	.1673	29,973	-	-	\$19.40 (2)
R5	.1518	19,981	-	-	\$12.95 (4)
R6	.2707	19,382	-	-	\$12.56 (5)
R7	.1261	5,846	-	-	\$ 3.79 (7)

\* footnotes at end of Table I

TABLE I (Continued)

## Sledding, Tobogganing, Tubing

F&G Region	Participation Rate (1)	Total Participation (2)	Supply	Adequacy Indicator	Relative Need Indicator (3)	
					Amt. / Priority	
State	.3532	263,357				
R1	.4399	37,479	-	-	\$14.21	(3)
R2	.4357	49,365	-	-	\$18.74	(2)
R3	.3137	37,111	-	-	\$14.09	(4)
R4	.3156	56,542	-	-	\$21.47	(1)
R5	.2513	33,078	-	-	\$12.56	(5)
R6	.3923	28,089	-	-	\$10.67	(6)
R7	.4679	21,693	-	-	\$ 8.24	(7)

(1) Number of occasions per capita in February, 1977.

(2) February, 1977, occasions produced within the region.

(3) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to participation.

TABLE II  
Site Oriented Winter Activities - Future Conditions

## Ice Skating on Natural Water Bodies

F&G Region	February 1977 (1) Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation	1990 (2) Relative Need Indicator	1977 (2) Relative Need Indicator
					Amt. / Priority	Amt. / Priority
State	115,964			154,243		
R1	30,084	32,879	35,711	38,929	\$25.24 (1)	\$25.94 (1)
R2	17,754	19,332	21,846	24,795	\$16.08 (3)	\$15.31 (3)
R3	13,250	14,709	16,631	18,598	\$12.06 (5)	\$11.43 (5)
R4	20,442	23,523	26,299	29,187	\$18.92 (2)	\$17.63 (2)
R5	10,491	11,828	13,423	15,074	\$ 9.77 (6)	\$ 9.05 (6)
R6	16,611	18,320	19,681	20,709	\$13.43 (4)	\$14.32 (4)
R7	7,332	6,774	6,855	6,951	\$ 4.51 (7)	\$ 6.32 (7)

## Ice Skating on Man Made Rinks

F&G Region	February 1977 (1) Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation	1990 (2) Relative Need Indicator	1977 (2) Relative Need Indicator
					Amt. / Priority	Amt. / Priority
State	154,276			190,139		
R1	17,568	19,200	20,270	22,733	\$11.96 (6)	\$11.39 (6)
R2	23,090	25,143	28,413	32,248	\$16.96 (3)	\$14.97 (3)
R3	38,436	42,667	47,295	53,948	\$28.37 (1)	\$24.91 (1)
R4	29,973	34,490	38,560	42,795	\$22.51 (2)	\$19.40 (2)
R5	19,981	22,527	25,566	28,709	\$15.10 (4)	\$12.95 (4)
R6	19,382	21,376	22,964	24,164	\$12.71 (5)	\$12.56 (5)
R7	5,846	5,401	5,465	5,542	\$ 2.91 (7)	\$ 3.79 (7)

## Sledding, Tobogganing, Tubing

F&G Region	February 1977 (1) Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation	1990 (2) Relative Need Indicator	1977 (2) Relative Need Indicator
					Amt. / Priority	Amt. / Priority
State	263,357			353,370		
R1	37,479	40,961	43,244	48,498	\$13.72 (4)	\$14.23 (3)
R2	49,365	53,753	60,743	68,943	\$19.51 (2)	\$18.74 (2)
R3	37,111	41,197	46,581	52,089	\$14.74 (3)	\$14.04 (4)
R4	56,542	65,063	72,742	80,731	\$22.85 (1)	\$21.47 (1)
R5	33,078	37,292	42,323	47,526	\$13.45 (5)	\$12.56 (5)
R6	28,089	30,979	33,278	35,018	\$ 9.91 (6)	\$10.67 (6)
R7	21,693	20,040	20,281	20,565	\$ 5.82 (7)	\$ 8.24 (7)

(1) February, 1977, occasions produced within the region.

(2) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to participation.

## DOWNHILL SKIING

This section considers the role of downhill skiing in Montana's recreational complex. Considerable care and sensitivity must accompany efforts to accommodate these recreationists while preserving natural and cultural amenities. Being specifically charged with both the task of providing outdoor recreation opportunities and supervising the state's fish and wildlife, the Montana Department of Fish and Game must approach planning for downhill skiing in the harsh light of reality. Developments associated with downhill skiing often include major on-site real estate developments, along with sprawling spin-off developments adversely affecting fish and wildlife habitat. At the same time recreation use at such facilities is substantial. The question remains, how much value do Montanans place on natural amenities as opposed to developments for recreation which may adversely affect those amenities? Consequently, planning for this activity must be both sensitive and cautious.

Skiing has been thought of as an "elitist" activity by some. This fact, combined with the high cost of developing ski facilities, has led the recreation manager to the conclusion that development of downhill skiing is properly the exclusive responsibility of the private sector. In this section the "elitist" theory as well as the responsibility of the private sector is evaluated.

The February, 1977, Statewide Winter Recreation Survey demonstrated that the downhill skier both spent more and was willing to travel further per outing than other winter recreationists surveyed. The 399,985 February activity occasions (Table I) point out the popularity of the sport. Also, the average expense of \$40.70 per day and the average willingness to travel a distance of 83.39 miles per one day trip and 197.24 miles per two day trip, while greater than for other winter activities, is probably comparable to other summer activities. The facts point out that downhill skiing is participated in by a wide segment of society.

The elitist image of the downhill skier has fostered as well an image of the ski resort with elaborate facilities. There is certainly a market for such resorts which can only be met by the private sector but there is little to suggest that the Montana skier is routinely interested in such resorts or that these resorts are economically feasible when dependent upon the Montana population alone.

The economic benefits of spin-off real estate developments associated with ski resorts, coupled with Montana's magnificent landscape, tends to make resort promoters prematurely optimistic. Conversely, ski developments may pose a threat to some of Montana's natural amenities - particularly, fish and wildlife.

Montana ski resorts are competing on national and international markets from a fairly isolated location against well established resorts with established transportation networks closer to major population centers. This, coupled with the fact that almost any substantial resort development is certain to encounter careful scrutiny by environmentalists, suggests that expansion of the ski resort industry in Montana must be undertaken with great care and forethought. This is not to say, however, that ski resorts do not have their place in Montana's economy and environment. However, a joint public-private feasibility study of ski resort marketability and environmental acceptability is probably wise before investment is undertaken.

Between the enthusiastic resort user and the skier who is willing to settle for any hill with snow on it is the skier (probably the majority of Montanans) looking for a decent, inexpensive slope close to home. Serving this skier has been viewed as the exclusive domain of the private sector. Development, however, of even modest ski areas is a capital intensive land use and with uncertain snow conditions this business is

speculative and risky. It is precisely in this area that the relationship of the public and the private sector needs considerable scrutiny. Many possibilities exist whereby the public sector could enhance skiing opportunities, possibly while enhancing other winter and summer activities and at the same time insuring greater stability within the ski industry. Analysis of these possibilities could be included within a review of the marketability and environmental acceptability of the ski industry.

### Goal

The goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for the current and future demand for downhill skiing anticipated in Table II.

Site protection may include protecting specific sites for development, and when necessary, from development. The policies below assume that this goal will be met largely through inter- and intra-agency cooperation.

### Policies

In light of the above discussion, the policies of the Montana Department of Fish and Game should be to:

- 1) Encourage closer working relations between the public and private sector in providing skiing opportunities, with the U.S. Forest Service assumed to be the major public agency responsible for development of this relationship.
- 2) Encourage and participate in a joint public-private analysis of the marketability, environmental acceptability, and environmental impacts of spin-off developments associated with

the ski industry. A semi-independent organization with advanced capability in economic analysis should assume leadership responsibility for the analysis.

- 3) Define when 2), above, is completed the role of the Department of Fish and Game towards the enhancement of downhill skiing opportunities.
- 4) Avoid until 3), above, is completed the commitment of public resources to the enhancement of downhill ski resources.

### PROBLEMS

1. Lack of dependable snow conditions restricts private investment in ski facilities to areas far from population centers.

### ALTERNATE STRATEGIES

- 1.a. Provide LWCF grants to local governments for ski facilities.
- b. Encourage communities to consider low cost mass transit systems to popular ski areas.
- c. Acquire and develop State Recreation Areas for skiing near population centers where snow is sufficient and private investment is not feasible.
- d. Take no action.

PROBLEMSALTERNATE  
STRATEGIES

- |   |   |  |  |
|---|---|--|--|
| <p>2. Federal and state safety and operating requirements are in need of evaluation for their adequacy, usefulness, and enforceability.</p> | <p>2.a. Encourage the U.S. Forest Service and the state of Montana to evaluate safety regulations.</p> <p>b. Encourage exploration of state subsidization of costs of meeting state requirements by small operators.</p> <p>c. Encourage Congress to subsidize the cost of meeting federal requirements by small operators.</p> <p>d. Take no action.</p> | <p>4. There is a lack of coordination between ski resort owners/developers and public agencies with recreation responsibilities.</p> | <p>4.a. Develop a state-wide policy on ski area developments.</p> <p>b. Encourage public agencies to develop facilities for other winter activities at or near popular ski areas.</p> <p>c. Take no action.</p>  |
| <p>3. The national marketability of Montana ski resorts is uncertain.</p>   | <p>3.a. Encourage a study by a semi-independent organization of the marketability and environmental feasibility of Montana ski resorts to non-residents.</p> <p>b. Encourage appropriate agencies and organization to increase national advertising efforts to promote existing Montana ski resorts.</p> <p>c. Take no action.</p>                        | <p>5. Ski resort development can be disruptive to the environment, particularly fish and wildlife.</p>                               | <p>5.a. Work closely with resort owners/developers and public land managing agencies to minimize impacts.</p> <p>b. Seek methods to control and direct spin-off developments.</p> <p>c. Monitor ski area development proposals to insure that information is available on a timely basis regarding fish, wildlife and other values.</p> <p>d. Couple methods of controlling and directing spin-off developments with the granting of required permits or other government participation.</p> <p>e. Take no action.</p> |

TABLE I  
Downhill Skiing - Current Conditions

F&G Region	Participation Rate (1)	Total Participation (2)	Supply (3)	Adequacy Indicator (4)	Relative Need Indicator (5)	
						Amount / Priority
State	.5365	399,985	26	15,384		
R1	.5120	75,402	4	18,851	\$21.92	(2)
R2	.4193	42,636	5	8,527	\$ 9.91	(5)
R3	.8739	141,161	10	14,116	\$16.41	(4)
R4	.5913	92,129	5	18,426	\$21.42	(3)
R5	.4346	39,149	2	19,575	\$22.76	(1)
R6	.2000	4,836	1	4,836	\$ 5.62	(6)
R7	.2432	1,672	1	1,672	\$ 1.94	(7)

TABLE II  
Downhill Skiing - Future Conditions

F&G Region	(2)				1977 Supply (3)	1990 (4) Adequacy Indicator	(5) 1990 Relative Need Indicator	(5) 1977 Relative Need Indicator
	February 1977 Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation				
State	399,985			550,654	26	21,179	Amt. / Priority Amt. / Priority	
R1	75,402	82,408	86,999	97,570	4	24,392	\$20.64	(3) \$21.92 (2)
R2	42,636	46,426	52,464	59,545	5	11,909	\$10.08	(5) \$ 9.91 (5)
R3	141,161	156,703	177,185	198,134	10	19,813	\$16.72	(4) \$16.41 (4)
R4	92,129	106,012	118,524	131,542	5	26,308	\$22.26	(2) \$21.42 (3)
R5	39,149	44,137	50,091	56,249	2	28,124	\$23.80	(1) \$22.76 (1)
R6	4,836	5,334	5,730	6,029	0	6,029	\$ 5.10	(6) \$ 5.62 (6)
R7	1,672	1,545	1,563	1,585	0	1,585	\$ 1.34	(7) \$ 1.94 (7)

(1) Number of occasions per capita in February, 1977

(2) February, 1977, occasions consumed within the region

(3) Active areas providing downhill skiing

(4) Participation ÷ supply

(5) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.



## WINTER TRAIL ACTIVITIES

This section considers the role of non-motorized winter trail activities as a part of Montana's recreational complex through a detailed analysis of cross-country skiing and snowshoeing (Tables I and II).

Recent years have witnessed a substantial increase in interest in winter trail activities such as cross-country skiing and snowshoeing. Projected participation rates (Table II) must therefore be viewed as speculative. The increased interest may be attributed to:

- 1) Increased availability of a wide variety of equipment.
- 2) Increased public interest in maintaining health through year-around lifetime sports activities.
- 3) Increased interest in and appreciation of the environment and natural phenomena.
- 4) A search for simple, environmentally acceptable and relatively inexpensive recreational activities.

These activities must be regarded as permanent aspects of Montana's outdoor recreation complex.

The February, 1977, Statewide Winter Recreation Survey indicates that cross-country skiers (and generally other winter trail users as well) prefer short outings of two days or less (95.7% of the trips) with family or friends (89.43% of the trips) in natural undeveloped areas (67.49% of the trips). Indeed, cross-country skiers are willing to travel a considerable distance to find these natural areas. The winter 1977 estimate of willingness to travel in order to participate in in cross-country skiing averaged 51 miles per one day trip and 128 miles

per two day trip. This estimate points to the fact that if energy conservation is to be practiced, resources for winter trail users as for other outdoor recreation activities should be located as close as possible to population centers.

Though the survey shows that cross-country skiers prefer natural areas, concern for the safety and enjoyment of winter trail users dictates some measure of development. Results of the winter survey indicate that designating and marking appropriate trails and areas to separate non-motorized trail users from motorized trail users would be of great benefit. In addition, better information on area conditions and trail difficulty as well as information on winter survival techniques would be of assistance to winter trail users in addition to other winter recreationists.

The non-motorized trail user and snowmobiler appreciate in general the same type landscape, but the premium which the non-motorized trail user places on solitude puts him in inevitable conflict with the snowmobiler. While this conflict will probably never be entirely eliminated, agencies planning for winter trail use should be cognizant of this conflict and make every effort to reduce it to a minimum through careful planning and, where necessary, zoning and the provision of public information, education and law enforcement.

### Goal

The goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for current and future demand for winter trail activities displayed in Table II.

This goal will be met through the provision of information, inter- and intra-agency cooperation and regulation.

#### Policies

The policies of the Montana Department of Fish and Game with respect to winter trail activities should be to:

- 1) Assume that major responsibility for winter trail activities will reside with the U. S. Forest Service.
- 2) Cooperate in, and lead when necessary, projects which will enhance through non-structural techniques the quality of and opportunity for winter trail activities.
- 3) Select whenever possible winter recreation projects funded through the Department which provides the widest array of benefits to all winter recreationists.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
1. Information is lacking on suitable areas for winter trail activities.	<ol style="list-style-type: none"> <li>1.a. Prepare brochures and maps of suitable areas on department lands for public distribution.</li> <li>b. Cooperate with the U. S. Forest Service and other federal agencies to identify and mark suitable trails and areas.</li> <li>c. Take no action.</li> </ol>
2. There are serious conflicts between non-motorized and motorized winter trail users.	<ol style="list-style-type: none"> <li>2.a. Encourage spatial and temporal zoning to separate user types.</li> <li>b. Encourage U. S. Forest Service and other federal agencies to mark and maintain trails and areas closed to motorized vehicles.</li> <li>c. Strictly enforce noise limits on motorized vehicles.</li> <li>d. Encourage the development of special noise, speed and passing regulations at popular multiple use trails and areas.</li> <li>e. Take no action.</li> </ol>
3. Facilities for winter trail users are lacking in some areas.	<ol style="list-style-type: none"> <li>3.a. Encourage the design and development of multiple use facilities for winter recreationists where activity patterns are compatible.</li> <li>b. Make provisions for winter trail activities when designing recreation facilities near trailheads or roads where snow removal is not provided.</li> </ol>

(continued)

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
	<ul style="list-style-type: none"> <li>c. Encourage cities and counties to consider winter activities when developing recreational trails.</li> <li>d. Encourage ski resorts to include winter trail activities in their development plans.</li> <li>e. Survey winter trail users and areas to determine if facilities are needed.</li> <li>f. Take no action.</li> </ul>	<ul style="list-style-type: none"> <li>5. Winter trail activities may disrupt wildlife and other resources.</li> </ul>	<ul style="list-style-type: none"> <li>5.a. Limit activities to established trails only.</li> <li>b. Zone against human activity as necessary to protect resources.</li> <li>c. Seek cooperative enforcement agreements between local, state and federal agencies to make better use of existing enforcement resources.</li> <li>d. Encourage better education and stricter sanctions for users by user groups.</li> <li>e. Take no action.</li> </ul>
<ul style="list-style-type: none"> <li>4. Winter trail opportunities are lacking near many urban areas.</li> </ul>	<ul style="list-style-type: none"> <li>4.a. Encourage cities and counties to submit LWCF projects for winter trail activities.</li> <li>b. Encourage the U.S. Forest Service and the Bureau of Land Management to set priorities for trail development near urban areas.</li> <li>c. Give high priority to projects funded through the Department which include winter trail development/maintenance activities near urban areas.</li> <li>d. Take no action.</li> </ul>	<ul style="list-style-type: none"> <li>6. Winter trail activities can be dangerous.</li> </ul>	<ul style="list-style-type: none"> <li>6.a. Increase public knowledge of winter activities and safety precautions through information and education programs.</li> <li>b. Increase recreationist-law enforcement officer contact to reinforce proper safety and equipment precautions under field conditions.</li> <li>c. Take no action.</li> </ul>

TABLE I  
Winter Trail Activities - Current Conditions

Cross-Country Skiing

F & G Region	Participation Rate (1)	Total Participation (2)	Supply (4)	Adequacy Indicator (5)	Relative Need Indicator (6)
					Amount / Priority
State	.3726	227,789	108	2,572	
R1	.4742	41,646	27	1,542	\$ 8.57 (6)
R2	.4357	51,861	27	1,921	\$10.67 (5)
R3	.5742	91,463	20	4,573	\$25.41 (1)
R4	.3213	53,084	21	2,528	\$14.05 (3)
R5	.4089	30,521	7	4,360	\$24.23 (2)
R6	.0663	5,870	3	1,957	\$10.87 (4)
R7	.1261	3,344	3	1,115	\$ 6.20 (7)

Snowshoeing

	(1)	(3)	(4)	(5)	(6)
State	.1125	83,897	108	777	
R1	.2509	21,377	27	792	\$15.09 (4)
R2	.2100	23,793	27	888	\$16.92 (3)
R3	.1204	14,243	20	712	\$13.57 (5)
R4	.0703	12,595	21	600	\$11.43 (6)
R5	.0681	8,964	7	1,281	\$24.41 (1)
R6	.0000	0	3	0	0 (7)
R7	.0631	2,925	3	975	\$18.58 (2)

(1) Number of occasions per capita in February, 1977.

(2) February, 1977, occasions consumed within the region.

(3) February, 1977, occasions produced within the region.

(4) Publicized trailheads.

(5) Participation ÷ Supply

(6) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.

TABLE II  
Winter Trail Activities - Future Conditions

Cross-Country Skiing						(4)	(5)	(5)
F & G Region	February 1977 (1) Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation	(3) 1977 Supply	1990 Adequacy Indicator	1990 Relative Need Indicator	1977 Relative Need Indicator
State	277,789						Amt. /Priority	Amt. /Priority
R1	41,646	45,515	48,051	384,555	108	3,561		
R2	51,861	56,471	63,815	53,890	27	1,996	\$ 8.17	(6) \$ 8.57 (6)
R3	91,463	101,533	114,804	72,429	27	2,683	\$10.98	(4) \$10.67 (5)
R4	53,084	61,084	68,293	128,377	20	6,419	\$26.28	(1) \$25.41 (1)
R5	30,521	35,121	39,265	75,793	21	3,609	\$14.77	(3) \$14.05 (3)
R6	5,870	6,474	6,955	43,578	7	6,225	\$25.48	(2) \$24.23 (2)
R7	3,344	3,089	3,126	7,318	3	2,439	\$ 9.98	(5) \$10.87 (4)
				3,170	3	1,057	\$ 4.33	(7) \$ 6.20 (7)

#### Snowshoeing

	(2)		(3)	(4)	(5)	(5)
State	83,897					
R1	21,377	23,363	24,665	114,517	108	1,060
R2	23,793	25,908	29,277	27,662	27	1,025
R3	14,243	15,811	17,878	33,229	27	1,231
R4	12,595	14,493	16,203	19,991	20	1,000
R5	8,964	10,106	11,469	17,983	21	856
R6	0	0	0	12,879	7	1,840
R7	2,925	2,702	2,734	0	3	0
				2,173	3	924
						\$13.44
						(5) \$18.58 (2)

(1) February, 1977, occasions consumed within the region.

(2) February, 1977, occasions produced within the region.

(3) Publicized trailheads.

(4) Participation + Supply

(5) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to the adequacy indicator.



## SNOWMOBILING

This section analyses the activity of snowmobiling which involves the use of over-snow motorized vehicles for recreational purposes.

The sport of snowmobiling has grown so tremendously during the past decade that it has evolved from an obscure pastime to one of the most popular winter outdoor recreation activities in the state. The February, 1977 Statewide Winter Outdoor Recreation Survey estimates current participation at over 400,000 February activity occasions. The fact that snowmobiling has been one of the fastest growing winter outdoor recreation activities is supported by reports from several other "snowbelt" states. The snowmobile industry estimated that 3 million snowmobiles are in use by approximately 8 million people in the snowbelt states and that sales have surpassed \$1 billion with nearly 100,000 people employed because of the sport in the U.S. and Canada. (Utah Snowmobile Resource inventory, 1975).

In Montana, snowmobile registrations have increased from 16,854 in 1975 to 23,169 as of July, 1977. The February survey indicates that snowmobilers are motivated by the same general aspirations as other winter trail users and are quite gregarious. Over 94% usually go snowmobiling with family or friends. Snowmobilers also prefer short outings of two days or less (95.73% of the trips) in natural undeveloped areas (53.19% of the trips) and on back country roads (37.5% of the trips).

Resource planning for the snowmobiler is becoming increasingly imperative for public recreation and land management agencies because the snowmobiler and his machine have been critized for excessive noise, breakdowns requiring search and rescue, wildlife harassment, parking

violations, vandalism, trail etiquette infringements, dangerous conflicts with automobiles on roads, trespassing, and snow compaction creating erosion, as well as other adverse environmental impacts.

The snowmobile industry and snowmobile clubs, to acknowledging these criticisms, have developed programs to minimize these negative impacts. For example, average noise levels have been reduced by the snowmobile industry from highs of over 100 decibels before 1968 to 1975 models with a 78 decibel rating at 50 feet.

Snowmobile clubs have also been active in Montana disseminating information and educating snowmobilers in proper snowmobile use and etiquette. The social structure of these clubs also acts to enforce public standards of behavior through peer pressure. Montana snowmobile clubs have also been instrumental in passing state laws to provide for snowmobile registration, safety education and facility development.

The 1977 Montana Legislature earmarked 3/10 of one percent (.3%) of the state fuel tax for use by the Parks Division of the Department of Fish and Game to provide for the acquisition, development, operation and maintenance of snowmobile facilities. These funds are in addition to funds currently reserved from registration fees for facility development. Eligible publicly sponsored projects may be financed in whole or in part through these funds and when appropriate receive LWCF money.

Preliminary criteria development to evaluate the benefits of individual project proposals are based on:

- 1) Environmental acceptability of the project.
- 2) Established snowmobile use of the area to be served by the project.

- 3) Proximity of the project area to snowmobile owners.
- 4) Total outdoor recreation benefits expected from the project.

The program guidelines are experimental and subject to revision as actual projects are built and analyzed for adequacy.

#### Goal

The goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition and capital improvements for current and future demand for snowmobiling anticipated in Table II.

The policies below assume that this goal will be met initially through regulation and inter- and intra-agency cooperation leading to capital improvements, operation and maintenance, and information where appropriate.

#### Policies

In reference to the above discussion, the policies of the Montana Department of Fish and Game should be to:

1. Cooperate with other government agencies, primarily the U.S. Forest Service, State Highway Department and counties, to acquire, develop and maintain snowmobile facilities.
2. Develop snowmobile facilities which will provide the maximum possible recreational benefit with the least environmental impact.
3. Assume that the major responsibility for the development of snowmobile trails on federal land will reside with the federal government.

4. Work to minimize the negative impacts associated with snowmobiling which act to retard the advancement of the sport.

#### PROBLEMS

#### ALTERNATE STRATEGIES

- |   |  |
|---|--|
| 1. Snowmobilers would like to see more services and facilities provided.                | 1.a. Earmark a percent of the personal property tax on snowmobiles for services and facilities.                |
|   | b. Cost-share projects with LWCF money.  |
|   | c. Seek cooperative agreements with federal, state or local agencies for facility development and maintenance. |
|   | d. Take no action.   |
| 2. Information is lacking on areas suitable for snowmobile use near population centers. | 2.a. Cooperate with the U. S. Forest Service and BLM in identifying such areas.                                |
|   | b. Prepare informational brochures for public distribution.  |
|   | c. Give facilities near urban areas a high priority for development.   |
|   | d. Take no action.   |



<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
3. Snowmobiles may cause damage to wildlife and other resources.	3.a. Limit snowmobiles to established trails only. b. Zone against snowmobiles as necessary to protect resources. c. Seek cooperative enforcement agreements between local, state and federal agencies to make better use of existing enforcement resources. d. Encourage user groups to educate and police users. e. Take no action.	5. There is a lack of uniformity in regulation and management of snowmobiles on public and private lands.	5.a. Develop inter-agency task force to standardize regulations and management. b. Undertake a study to summarize all existing state and federal regulations. c. Reevaluate and subsequently enforce regulations to govern the use of snowmobiles on roads and road right-of-ways. d. Take no action.
4. A lack of understanding of proper trail etiquette results in trail user conflicts.	4.a. Provide an information and education program for all winter trail users. b. Strictly enforce safety regulations. c. Use spatial and temporal zoning to separate snowmobiles from other recreationists. d. Design snowmobile facilities to reduce user conflicts. e. Take no action.	6. Snowmobiles may be excessively noisy, creating adverse impacts on operators, other recreationists, and wildlife.	6.a. Provide information and education program for operators. b. Seek changes in state law to require all snowmobiles to meet minimum noise standards. c. Require annual certification that noise standards are met before issuing registration decal. d. Strictly enforce noise standards. e. Take no action.

TABLE I  
Snowmobiling - Current Conditions

62

F&G * Region	Participation Rate (1)	Total (2) Participation	Supply	Adequacy Indicator	1977 Relative Need Indicator (3)
State	.5489	409,247	-	-	Amount / Priority
R1	.7766	70,344	-	-	\$17.19 (3)
R2	.5455	70,161	-	-	\$17.14 (4)
R3	.6190	70,838	-	-	\$18.29 (2)
R4	.5856	110,342	-	-	\$26.96 (1)
R5	.2801	29,304	-	-	\$ 7.16 (5)
R6	.4190	27,667	-	-	\$ 6.76 (6)
R7	.6321	26,591	-	-	\$ 6.50 (7)

\* Footnotes at end of Table II

TABLE II  
Snowmobiling - Future Conditions

F&G Region	(2) February 1977 Participation	February 1980 Participation	February 1985 Participation	February 1990 Participation	1990 (3) Relative Need Indicator	1977 (3) Relative Need Indicator
State	409,247			553,404	Amount / Priority	Amount / Priority
R1	70,344	76,879	81,163	91,025	\$16.45 (4)	\$17.19 (3)
R2	70,161	76,398	86,333	97,987	\$17.71 (3)	\$17.14 (4)
R3	74,838	83,078	93,937	105,042	\$18.98 (2)	\$18.29 (2)
R4	110,342	126,970	141,955	157,546	\$28.47 (1)	\$26.96 (1)
R5	29,304	33,037	37,494	42,104	\$ 7.61 (5)	\$ 7.16 (5)
R6	27,667	30,514	32,780	34,492	\$ 6.32 (6)	\$ 6.76 (6)
R7	26,591	24,565	24,860	25,208	\$ 4.56 (7)	\$ 6.50 (7)

(1) Number of occasions per capita in February, 1977.

(2) February, occasions consumed within the region.

(3) Relative need indicator = the desirable regional allocation of \$100 if the goal of management is to distribute resources in proportion to participation.

## SIGHTSEEING

The desire for sightseeing differs from other types of recreation discussed in this plan in that it may also be the motivation for many other activities which are more easily measured. Driving for pleasure and trail related activities varying from hiking to snowmobiling are probably as much dependent upon the quality of the scenery in which the pursuit is conducted as the pleasure derived from the activity itself. Other forms of recreation are also dependent on scenic and environmental qualities although less obviously. For example, after considering the availability of desired activities the Montana camper strictly evaluates campgrounds for scenic and environmental attributes as well. Further, there is evidence that fishing trips are explainable not only on the basis of fishing success but also on the scenic quality in which that fishery is set. However, in Montana there is a tendency to think of sightseeing as experiencing scenic and wildlife resources only, neglecting the large amount of activity at man-made sights such as historic sites and districts, political centers and industrial areas.

Because of the complexity of measuring and defining sightseeing as an activity, it has been difficult to gather adequate and meaningful data on supply and demand and consequently it is impossible at this time to establish quantitative goals or policies for the management of either sightseeing or scenery.

The Montana Department of Fish and Game is committed by law to the conservation of scenic resources. This commitment should take two forms. First, with respect to Department sites, scenic values should be considered as direct and measurable variables in the criteria for site acquisition, development and management.

Second, with respect to other lands, the Department should remain committed not only to the conservation of natural landscapes but also to the conservation of historic, archaeological, scientific and recreational resources as well as an orderly man-made environment. With respect to the latter, LWCF grants to local governments can bring about projects which complement urban planning and development.

PROBLEMS

1. Urban areas are subject to visual blight.

ALTERNATE STRATEGIES

- 1.a. Support legislative efforts to develop laws for the protection of visual elements.
- b. Use urban LWCF grants to promote visual resource preservation and enhancement.
- c. Support and cooperate with intra-urban redevelopment or preservation programs.
- d. Encourage communities to reserve land for parks and open space.
- e. Undertake educational programs, such as reestablishing the Helena Wildlife Exhibit to help people understand and appreciate their environment.
- f. Take no action.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>	<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
2. Rural subdivision may lead to chaotic and visually offensive developments.	<p>2.a. Support legislative efforts to restructure taxation of real property to preserve natural landscapes such as expanding the use of conservation easements and land speculation taxes.</p> <p>b. Provide technical assistance to subdividers and local governments to aid in preservation of scenic, and visual resources.</p> <p>c. Support legislation to expand the definition of easements donated for "conservation purposes" to include specifically easements for cultural, scientific, historic and archaeological sites and research.</p> <p>d. Use LWCF grants to promote visual resource preservation and enhancement.</p> <p>e. Take no action.</p>	3. Visual and cultural resource values on public lands can be negatively impacted by resource extraction.	<p>3.a. Support and cooperate in the planning and review process for public land development.</p> <p>b. Support legislation which insures wise resource use.</p> <p>c. Encourage the development of procedures to ensure full implementation of NEPA and MEPA and other related laws and regulations for the conservation of visual and cultural resources.</p> <p>d. Develop the technical assistance capability to assist land managers and industry in minimizing adverse impacts and reaching acceptable levels of landscape change.</p> <p>e. Encourage federal grant programs to allow visual and cultural resource preservation to be eligible for an increased federal share of project costs.</p> <p>f. Take no action.</p>

PROBLEMS

ALTERNATE  
STRATEGIES

PROBLEMS

ALTERNATE  
STRATEGIES

4. Visual and cultural resources are not always planned for by public agencies.

- 4.a. Identify these resources on Department sites and carefully address them in management documents.
  - b. Encourage requirements that agencies identify as a part of program planning all resources which qualify for protection under RCM 62-301.
  - c. Undertake projects to clarify the nature of these resources and methods for their preservation.
  - d. Implement natural area preservation to include examples of representative as well as pristine and unique ecotypes and landscapes.
  - e. Take no action.
- 

5. Recreation, scenic and cultural values are seldom directly considered in formulating local land use plans.

- 5.a. Encourage Department personnel to assist in the development and review of recreation, open space and cultural elements of local plans.
  - b. Develop technical assistance capability to assist with recreation, scenic and cultural elements of local plans.
  - c. Work with the Department of Community Affairs to offer assistance with recreation, scenic and cultural elements of local plans.
  - d. Take no action
-



## CULTURAL AND SCIENTIFIC RESOURCES

The term "cultural resources" is used in this plan quite often in place of historic and archeologic since it is a more inclusive and general term which refers to buildings, sites, districts, structures or objects significant in history, architecture, archaeology or culture. The term "scientific resources" refers to areas with significant ecological, geological, paleontological or biological values.

The state park system has been responsible for conserving the cultural and scientific resources of the state for the enjoyment of the people since the first comprehensive state parks legislation was enacted in 1939. These resources form an important segment of the state park system and are in fact the primary value of the first state park ever established in Montana--Lewis and Clark Caverns.

The Montana Department of Fish and Game has acquired and maintained a significant amount of property which is either wholly or partially dedicated to the conservation of cultural and scientific values (Table I). The value of and need for these areas however is not easy to assess since need is not a function of the amount of visitors observed or expected. This is because the impact or value of a single visit to a cultural or scientific site is often many times that of a visit to a recreation site. Each visit can be an educational experience and can be recalled many times to reinforce abstract concepts. Nevertheless, the relative importance of these unique resources must be assessed and representative examples preserved and appropriately interpreted to the public.

The basic state park law (Sec 62-301 R.C.M. 1947) dictates that conserving cultural and scientific resources must remain as one of the primary purposes of the state park system despite the lack of data to indicate heavy use of such areas (heavy use would in fact be contrary to the reasons for preserving these places). Nevertheless, the 1971-1972 Montana Resident Recreation Survey indicated that Montanans preferred historic and cultural sites over intensively developed areas by a margin of two to one. The Montana Legislature has also from time to time directly brought about inclusion within the state park system many significant cultural and scientific resources when other methods failed.

Staggering problems still exist in the effort to preserve cultural and scientific resources. A consensus on the relative significance of known cultural resources has yet to be reached despite inventory efforts by the Department which date back to 1968. No inventory has been made for scientific resources. Laws to protect these resources, even on state and federal lands, are still woefully inadequate. A massive amount of coordination and cooperation will also be necessary between private land-owners and state agencies, state and federal agencies, and state agencies themselves to insure adequate conservation of these resources. Perhaps the most necessary and beneficial coordination must be between the Montana Department of Fish and Game and the Montana Historical Society which both have responsibilities for preserving historic sites, and plans and programs for doing so.

### Goal

The goal of the Montana Department of Fish and Game is to:

Manage through regulation, information, inter- and intra-agency cooperation, site protection, land acquisition, capital improvements and maintenance to conserve representative examples of Montana's cultural and scientific resources for the enjoyment of the people.

The policies below assume that this goal will be met largely through inclusion of the most significant sites within the state park system with other sites preserved through regulation and inter-agency cooperation.

### Policies

Therefore, the policies of the Montana Department of Fish and Game should be to:

- 1) Cooperate with other government agencies primarily the Montana Historical Society and the state universities in the identification, acquisition, development, and maintenance of areas with unique cultural and scientific values.
- 2) Encourage the Montana Historical Society to implement the goals and objectives of the existing Montana Historic Preservation Plan and participate wherever possible.
- 3) Make available for recreation or visitor facilities, where appropriate, LWCF money to public owned areas with cultural and scientific values which fulfill needs not served by federal historic preservation grant monies.
- 4) Recognize cultural and scientific values on Department lands and to identify, preserve, and interpret to the public those values in appropriate ways.

### PROBLEMS

1. Public support for the preservation of cultural and scientific values has at times been disjointed and ineffective.
2. There is a lack of public awareness and understanding of cultural and scientific resource values.

### ALTERNATE STRATEGIES

- 1.a. Support reorganization within the federal government to unify funding sources and implement programs such as the National Heritage Trust.
- b. Recommend that federal LWCF money and historic preservation money be combined under a federal aid option like Pittman-Robertson/Dingell-Johnson funds.
- c. Recommend that the Governor's Office review and consolidate state administration of federal funds for cultural and scientific resources.
- d. Support legislation requiring federal agencies to clear with appropriate state agencies expenditures on cultural and scientific resources.
- e. Take no action.
- 2.a. Encourage the Montana Historical Society to implement preservation plan recommendations on information and education.
- b. Where appropriate, identify, protect and interpret these values to the public wherever they are found on Department lands.

(continued)



PROBLEMSALTERNATE  
STRATEGIES

- c. Encourage the establishment of a state supported Montana Conservation Council to mobilize and consolidate concern for all cultural and natural resource values.
- d. Encourage broader public representation on the Governor's Historic Sites and Antiquities Advisory Council.
- e. Take no action.

3. There is a lack of coordination and communication regarding the preservation of cultural and scientific resources.

- 3.a. Encourage the implementation of a comprehensive cultural and scientific site inventory system.
- b. Encourage the use of criteria which help to assess preservation potential and predict archaeological values.
- c. Recommend inclusion of the State Liaison Officer for the Land & Water Conservation Fund on the Governor's Historic Sites and Antiquities Advisory Council.
- d. Take no action.

PROBLEMSALTERNATE  
STRATEGIES

- 4. Cultural and scientific values are threatened by vandalism and private and public development projects.

- 4.a. support legislation to strengthen provisions of the State Antiquities Act.
- b. Undertake surveys to identify cultural and scientific values on Department lands.
- c. Increase law enforcement efforts on department lands.
- d. Explore the use of cooperative agreements to protect cultural values on non-department lands.
- e. Take no action.

- 5. Assistance is necessary for preserving cultural and scientific values on private lands.

- 5.a. Support legislation to release landowners from liability when preserving cultural or scientific resources.
- b. Support legislation to establish a revolving fund for acquisition or development of significant resources by private individuals.
- c. Support legislation giving tax credits for preservation work and tax benefits for maintaining cultural and scientific resources.
- d. Use law enforcement personnel to enforce provisions of the State Antiquities Act.
- e. Take no action

TABLE I  
PARK SYSTEM AREAS WITH MAJOR IDENTIFIED CULTURAL OR SCIENTIFIC VALUES <sup>(1)</sup>

<u>NAME</u>	<u>DESIGNATION</u>	<u>VALUES</u>
Bannack	State Park	historical, architectural
Giant Springs	State Park	geological, historical
Lewis & Clark Caverns	State Park	geological, ecological
Makoshika	State Park	geological, paleontological
Medicine Rocks	State Park	geological
Missouri Headwaters	State Park	historical, cultural
Beaverhead Rock	State Monument	historical
Chief Joseph Battleground	State Monument	historical
Chief Plenty Coups Memorial	State Monument	historical
Citadel Rock	State Monument	historical, geological
Fort Maginis	State Monument	historical
Fort Owen	State Monument	historical
Granite	State Monument	historical, architectural
Greycliff Prairie Dog Town	State Monument	biological
Madison Buffalo Jump	State Monument	archaeological
Natural Bridge	State Monument	geological
Pictograph Cave	State Monument	archaeological
Sluice Boxes	State Monument	historical, geological
Ulm Pishkun	State Monument	archaeological
Coal Banks Landing	State Recreation Area	historical, geological
Cow Island Landing	State Recreation Area	historical
Hole-In-The-Wall	State Recreation Area	historical, geological
James Kipp	State Recreation Area	biological
Judith Landing	State Recreation Area	historical
Slaughter River	State Recreation Area	historical
Big Pine	Fishing Access Site	biological
Camp Baker	Fishing Access Site	historical
Intake	Fishing Access Site	biological

(1) Cultural values identified from Montana Historic Preservation Plan, 2nd Ed., July, 1975.

## URBAN RECREATION

Over the past several years the Parks Division has undertaken several rather detailed studies of recreation in Montana's urban centers. The most important of these have been:

- 1) Montana Department of Fish and Game, Recreation & Parks Division and the Governor's Council on Physical Fitness, Recreation and Lifetime Sports (1974). 1973 Statewide Survey of Urban Recreation Facilities and Programs.
- 2) Leisure Research Associates (1975). Statewide Urban Outdoor Recreation Areas and Facilities Survey. Prepared for the State of Montana, Department of Fish and Game.

The first of these studies sought to identify, community by community, existing urban recreational facilities. The second study sought to determine the frequency of use of, the impression of the conditions of, and the priority for construction or renovation of urban recreational facilities in Montana's communities.

### Needs

The number of facilities in each community (Montana Department of Fish and Game, et. al. 1974) were compared with the number of facilities each community should have according to Montana SCORP, "Standards," 1973, Vol. 1, pp. 40-52, in order to define the recreational needs of each community. The calculations of need considered the rural population which might reasonably be expected to use an urban community's recreational facilities. The needs were then combined on a county and then regional basis.

All regions showed a "need" for more urban recreation facilities. There was nothing, however, to suggest that recreational needs were greater, in a relative sense, in

larger communities than in smaller communities. Urbanization varies in magnitude rather than kind so that the needs of the smallest communities are micro-scale versions of the same problems which are encountered in the largest communities.

Some regions, however, showed more need than others. Need was greatest in those regions where the tax base has been small. Poor recreation facilities, then, result from the unwillingness or inability of poor communities to include urban outdoor recreation in their budgets. Federal matching funds can be expected to avail little to such communities relative to their richer neighbors.

Efforts, however, are being made to identify reasonable urban projects suitable for Land and Water Conservation Fund sponsorship in areas of the greatest need.

### Use and Preference

In the 1975 study mentioned above, there was considerable variance in the responses from community to community as to the impression of the conditions and the priority for construction or renovation of urban recreation facilities. This is to be expected for the sample size in the individual communities were often extremely small and thus highly sensitive to single responses. On the other hand, when the data was grouped according to cities of similar size, variance disappeared--the use, impression of and the priority for renovation or construction of urban recreational facilities was basically the same regardless of the size of the community. The same was true when the communities were grouped by planning region--no significant variation by region as to use, impression of the condition, and the priority for renovation or construction of urban recreational facilities could be found.

These observations are not surprising for they are in accord with basic theories of urbanization. Urbanization is a process repeated time and again in different places and periods in history. The process, however, remains basically the same. The similarity of the process suggests that cities, regardless of where they are, possess basic needs in terms of programs and facilities and among these are recreation facilities and programs. Slight variation in desired facilities may be accounted for by understanding local fads and leadership. Theory and the findings of these studies suggest that there is indeed a basic set of recreational facilities and programs as necessary to tolerable urban existence as a safe water and sewage system.

What, however, is the nature of this basic set of urban facilities? The 1975 study mentioned above found that in the summer, parks and playgrounds were the most used urban facilities (30.42% of the total incidents of use encountered in the survey), followed by swimming pools (16.28%). The other ten facilities surveyed accounted for 57.30% of the total incidents of use with the low going to wading pools (2.17%) and the high to golf courses (9.14%). No clear pattern of use of these ten facilities could be determined.

The general impression of the condition of urban recreational facilities differed from the use pattern in several important aspects. Those surveyed were most satisfied with the condition of the parks, 48.9% indicating that conditions were satisfactory. Playgrounds tied with baseball fields for second place, 34.1% of the respondents indicating that these facilities were generally in satisfactory condition. Swimming pools on the other hand came in 6th among the thirteen facilities asked about with only 28.0% finding conditions satisfactory.

The expressed priority for construction or renovation of facilities proved surprising. The construction or renovation of swimming pools was the highest priority (44.1% of those responding) with parks and playgrounds coming in second and third (respectively, 38.1% and 34.6%). No meaningful pattern could be found for the other ten facilities.

This suggests that people generally want to improve the quality of those things which they use most often. In terms of facilities the municipal swimming pool is highly esteemed followed by parks and playgrounds. It should be noted that parks and playgrounds are not facilities but institutions in which facilities occur. While swimming pools, parks and playgrounds are highly esteemed in municipalities, opinions on other facilities are divided. This does not imply that these other facilities should not be built but that facility construction should be carried out in the light of a long-range parks program of which capital improvement is only a part. These programs, whether informally conceived or reflected through the most formal of procedures, must be initiated in and reflect local community priorities.

#### Goal

In the light of the above discussion the goal of the Montana Department of Fish and Game is to:

Provide Land and Water Conservation Funds to all urban recreational projects otherwise eligible for those funds to the extent the Fund is available and requested.

#### Policies

In meeting this goal, the policies should be:

- 1) To fairly and equitably administer through acceptable procedures about 50% of Montana's share of the Land and Water

Conservation Fund to Montana's communities and counties and appropriate public agencies.

- 2) To assume that responsibility for defining local recreational needs lies with the communities.
- 3) To assure that LWCF funded projects benefit as far as possible all segments of society.

### Procedures

For the foreseeable future requests for Land and Water Conservation Funds will probably exceed available funds. Consequently, it has been necessary to establish with review by the Montana Fish and Game Commission, the Montana League of Cities and Towns and the Montana Recreation and Parks Association, a procedure for allocating limited funds to urban projects. Variables considered are:

#### A. Project type and use

1. Season of use
2. Spectator/participant use
3. Population segment served
4. Nature of project design

#### B. Need for project

1. Land and Water Conservation Funds received to date
2. Sponsor funding source
3. Land acquisition
4. Estimated need (1973 Montana SCORP, Vol. I, pp. 40-52)
5. Resubmission of previous project

#### C. Project Administration

For the purposes of establishing need, the standards set forth in the 1973 SCORP, Vol. I, pp. 40-52, will continue to be used. Efforts will continue to be made in association with the Montana League of Cities and Towns and the Montana Recreation and Parks Association to improve the evaluation system.

<u>PROBLEMS</u>	<u>ALTERNATE STRATEGIES</u>
1. Information necessary to properly evaluate urban projects is difficult and expensive to obtain	<ol style="list-style-type: none"> <li>1.a. Increase planning staff.</li> <li>b. Planners could spend more time on urban data collection projects at the expense of other efforts.</li> <li>c. Create an advisory council for assistance in decision making on topics where data is lacking.</li> <li>d. Take no action.</li> </ol>
2. Projects conducted under the Land and Water Conservation Fund are not used to their full advantage particularly by the aged and physically handicapped because of lack of or inadequate recreation programming and leadership in many Montana communities.	<ol style="list-style-type: none"> <li>2.a. Implement in Montana as rapidly as possible appropriate recreational resolutions of the White House Conference on the Handicapped and the suggestions contained in the "Special Populations" section of this plan.</li> <li>b. Take no action.</li> </ol>

PROBLEMSALTERNATE  
STRATEGIES

- |   |   |
|---|---|
| 3. Administrative costs of Land and Water Conservation Fund grant administration continue to be charged to the communities and counties as overhead. This overhead has the effect of diluting the impact of the fund. | 3.a. Pay overhead costs from the State General Fund or other source of state money.<br><br>b. Take no action.   |
| <hr/>   |   |
| 4. Many communities are lacking the technical staff necessary to conduct necessary planning and to properly administer LWCF administered projects.  | 4.a. Provide technical support directly to communities.<br><br>b. Increase efforts to coordinate with other agencies providing technical assistance to communities.<br><br>c. Take no action. |
-

## SPECIAL POPULATIONS

Special populations are defined as those people whose physical mobility is impaired. The cause of the impaired physical mobility may result from a physical disability, mental disability, old age, poverty or a combination of the above. The degree of impairment may also vary considerably from individual to individual and from group to group. This implies that no single recreational program can serve all special populations equitably. It is known, however, that approximately one in every ten Montanans suffers from impaired mobility to a degree sufficient to merit official attention at some point in his or her life.

Recent studies including the 1976 Recreational Survey of the Handicapped have revealed that as a group special populations do not participate in outdoor recreation on par with the rest of the population. Participation is less frequent and aimed at the more passive activities. Aspirations, however, lean toward the same activities as the rest of the population. After considering the realities of the handicap, the variance between aspiration and actual participation may be explained by:

1. Architectural Barriers.
2. Program barriers

### Architectural Barriers

Though provisions of several federal and state laws aimed at reduction or elimination of architectural barriers to the free movement of special populations obviously apply to many recreational facilities, the relationship begs for specifics. What type of barriers affecting what kinds of populations are to be eliminated from what types of facilities? It is obvious an inter-city park should be barrier free. But should a trailhead in a wilderness area be subjected to the same design criteria? What are those design criteria?

Presently the criteria are lacking so that the structure of a barrier free recreation facility is more dependent upon the imagination and compassion of architects and engineers than any acceptable standards of the professionals.

### Recommendations

To overcome these problems, the Montana Department of Fish and Game recommends:

That the National Recreation and Parks Association, The National Therapeutic Recreation Society, and the Federal Bureau of Outdoor Recreation undertake a review and evaluation of architectural standards relevant to the design of recreational facilities.

Until such a review is completed, the Department will continue, where appropriate, to:

subject environmental impact statements, management plans, and site designs to review by representatives of and for special population groups;

and,

continue to evaluate local project applications in part on the basis of compliance with the letter and intent of the Architectural Barriers Act of 1966;

and,

encourage local communities to evaluate their existing recreation facilities for compliance and correction where necessary;

as well as,

give preference to local project applications which have demonstrated a special consideration for the needs of special populations either in design or programming for the project covered by the application.

However, the Montana Department of Fish and Game:

Generally opposes the use of the Land and Water Conservation Fund for projects within the boundaries of state institutions or on sites where use in fact is limited only to selected groups to the exclusion of the general public.

#### Program Barriers

Recreational programming will remain generally the responsibility of local government and the private philanthropic sector.

Recreation programs are defined as those social processes which give the recreationists knowledge and enthusiasm, and develop skill and ability. These personal characteristics are normally developed through socialization-leadership, training and association with fellow recreationists. Recreational socialization is provided through formal and informal institutions. The formal institution is the school system while informal institutions consist of a variety of public and private associations which provide "continuing recreational education." Generally, the formal institution must be adequate before informal institutions develop.

#### Recommendations

To improve the formal training of the physically handicapped, the Montana Department of Fish and Game recommends that:

State educational policy be altered to prohibit waiving physical education requirements for students at public educational facilities where physical education requirements are stated and that when a student is realistically incapable of participation in a given activity he be given alternate individualized instruction. The alternate instruction may include physical training or training in the cultural arts where the situation merits.

Meaningful physical education training, be it formal or informal, for the handicapped will come only as the education of recreation leaders and educators is altered to include awareness and consideration of the special needs of the physically handicapped. The Department consequently recommends that:

The National Therapeutic Recreation Society, the National Recreation and Parks Association and the American Alliance for Health and Physical Education and Recreation initiate investigations into the methods of encouraging the integration of consideration of needs of the physically handicapped into the physical education, recreation, and parks curricula in the colleges.

Even, however, if these investigations prove fruitful it must be recognized that at least ten years would pass before graduates of altered programs would enter mid-level management positions and consequently be able to substantially influence policy and program structure. Programs should be developed to help overcome this "time lag."

For example, Congress should be encouraged to establish a program of ten years duration to subsidize correspondence courses at no more than ten colleges involving a 12 semester hour sequence of courses on recreation and the handicapped. The ten colleges would be selected on the basis of competitively evaluated proposals. The sequence of courses should consist of,



at least, one three semester hour introductory course; and nine additional hours as determined by the competitive proposals.

In order to assure that the course study is pursued by physical education, park and recreational leaders the following suggestions should also be implemented:

- 1) The federally established program should bear one-half of the students' tuition cost and the other half should be matched by other federal funds where eligible for any student holding at least a half-time position in physical education, parks, or recreation management, supervision, programming, planning, design or development.
- 2) The course of study should meet state continuing education requirements for elementary and secondary physical education instructors.
- 3) State Liaison Officers for the Land and Water Conservation Fund Program or their delegated representatives should be required by the Bureau of Outdoor Recreation to be registered or have completed the introductory three hour course within one year of its being available in three universities. Failure to meet this requirement would place the state on probationary status for the receipt of Land and Water Conservation Funds. In the event that staff turn-over removed the individual who had taken the course from the office of the State Liaison Officer, staff failure to meet the requirement within six months would lead to probationary status.



ENERGY CONSERVATION  
AND  
RECREATION PARTICIPATION

Should the Montana Department of Fish and Game adopt a policy to:

Stress and stimulate the conservation of energy in the pursuit of outdoor recreation activity within the state park system?

Before the question can be answered, it must be asked how such a policy would be meaningfully implemented. While the agency can and will as a good citizen seek to conserve energy in its internal operation, only three techniques are apparent for influencing recreational behavior with respect to energy conservation. The Department can:

- 1) Select for acquisition and development those sites which are "closest" to major centers of population.
- 2) Attempt to direct through advertising and public information the recreationist to "energy conserving" activities.
- 3) Curtail operation of selected sites within the system where it appears that curtailment will discourage travel.

The third option may become viable if the energy situation achieves crisis proportions. Presently, however, the option is inviable for political and legal reasons. The "trust concept" which surrounds most if not all land holdings within the park system makes it virtually impossible to close these units without clear legislative mandate, a mandate which the Montana Legislative Assembly has the option of issuing

every two years. Since the Assembly has not issued this mandate and has clearly indicated its desire to maintain the operation of the park system, a unilateral course of park closure would be a foolish administrative course indeed.

Turning to the first option, there can be little doubt that the purchase and development of prime recreational lands close to population centers is a wise course for a number of reasons, among them energy conservation. The problem arises when the policy is extended to the acquisition of marginally valuable recreation resources closest to the people. The option would be viable if travel for recreation were highly elastic; that is, if for each unit decrease in fuel availability there were a corresponding decrease in travel for recreation, and if it could be assumed that supplies of fuel were to decline in the near future to the point that travel for outdoor recreation were significantly curtailed.

In fact, travel for recreation appears to be highly inelastic so that only a catastrophic fuel shortage would significantly curtail travel for outdoor recreation. To illustrate the point, the 1977 Winter Recreation Survey demonstrated a willingness among Montanans to travel more than 593 million miles in order to participate in only four activities (Table I). Since this represents fully 10% of the estimated 1976 urban and rural highway mileage in Montana, it is obvious that actual mileage travelled must be considerably less than the expressed willingness to travel. In other words, despite higher gas prices and the stress on energy conservation, the Montanan seems willing to travel even further than is now required in order to reach desired outdoor recreation resources.

Indeed, rising fuel prices and periodic local fuel shortages have led to the expectation of declines in park visitation and use. In recent years, these expected declines have not been realized on a sustained basis and, where short term declines have occurred, they have not been demonstratively related to increased fuel costs but rather the prospect of totally unavailable fuel. To explain this phenomena it has been theorized that the recreating public is having a "last fling." Alternatively, with interest in the environment increasing and prices on all commodities rising, the public may simply be finding that outdoor recreation is an attractive and economical alternative to other uses of leisure time. This leads to the prospect that demands for quality recreation sites and possibly willingness to travel for recreation may actually increase as the energy situation continues to deteriorate.

Another tact which could be taken is to actively encourage through a public information program the participation in "energy conserving" activities. To an extent this is currently being done through discriminatory taxation on certain recreational equipment, generally major consumers of fuel. The State of Montana taxes boats and snowmobiles but not track shoes and cross-country skis. The major problem in stressing "energy conserving" activities, however, is in defining those activities which "conserve energy." Presently, among the four activities covered in Table I, cross-country skiing, for example is associated with a lower total willingness to travel than other activities. This results from the fact that at present there are simply relatively few cross-country skiers. On a per capita basis willingness to travel does not differ between cross-country skiing and, for example, snowmobiling. To deliberately stimulate interest in cross-country skiing would simply be to encourage greater total travel for that activity,

interfere with competition within the private sector and aggravate problems associated with a new and developing form of outdoor recreation.

Further, the problem of identifying "energy conserving" activities is even more complex if other variables are considered. For example, if economic benefit as measured through cash flow (Table I) is considered as a variable to be maximized while willingness to travel is to be minimized, then the "energy conserving" activity in Table I becomes downhill skiing.

It is further doubtful, even if "energy conserving" activities could be isolated, if an agency directed public information campaign would have any significant impact relative to the cost of such an effort. With recreational industries possessing avid, well financed advertising programs a publicly sponsored information program would be either prohibitively expensive or an unheard voice in the deluge of advertising.

### Conclusion

The Montana Department of Fish and Game should continue to identify energy conservation techniques within its own operation and to stress the acquisition and management of prime recreational resources with those closest to major population centers receiving highest priority. The Department can also contribute to energy conservation by supporting sound urban planning which integrates consideration of recreation and transportation. Indeed, once conducted, the Land and Water Conservation Fund can be a potent force in executing such plans. To extend a policy of energy conservation to the acquisition of marginal recreation lands close to population centers appears at this time to dangerously oppose public priorities and risk misapplication of limited public funds. Attempting to influence public preference for activities also appears to be dangerously expensive and might, unless carefully planned, create more problems than it would cure. The agency is, however, well advised to continue careful monitoring of the energy situation and particularly the public reaction to it.

TABLE I  
1977 Travel - Cash Flow Data  
For Selected Activities

<u>Activity</u>	<u>Willingness to Travel for 1 and 2 day trips (Millions of Miles)</u>	<u>Cash Flow <sup>(1)</sup> (Millions of Dollars)</u>
Snowmobiling	149.0	\$45.5
Ice Fishing	187.0	\$42.5
Downhill Skiing	187.0	\$75.2
Cross Country Skiing	<u>70.0</u>	\$16.2
Total	593.0	

(1) Direct expenditures by participants for recreation for the season estimated from the February, 1977, Statewide Winter Recreation Survey.



## RECREATION COSTS IN MONTANA

## 1. What should operation of the state park system cost in Montana in 1978?

In 1978 there will be approximately 55,760,795 man days of non-urban outdoor recreation in Montana!<sup>1</sup> The cost per boating occasion to the state park system in 1978 is about 14.13¢.<sup>2</sup> Assuming, since boating is the only activity for which this type of data exist, that it is adequately funded and the cost to manage a boating occasion is typical of the cost of other recreation occasions, the 1978 operational cost of recreation in Montana should approximate \$7,879,000. The Montana state park system's share of this cost, based on the assumption that the share should be proportional to the ratio of Parks Division recreational sites to all recreational sites in the state (27.63%), should theoretically be \$2,176,967.78. The actual 1978 state park system budget is \$1,999,786 indicating that the system is under funded by \$177,181.78. However, the maximum 1978 budget request was \$2,055,548. This reduces the under funding to \$55,762.00. Further it seems to indicate that the professional recreation managers

feel that they can do \$2,176,976.78 worth of work for \$2,055,548 for a cost efficiency of about 6¢ on the dollar.<sup>3</sup>

## 2. How should this cost be met?

The mere difference of \$55,762 between the requested and appropriate operation funding for the state park system indicates that at least a temporary meeting of the mind has been achieved between professional park managers and those allocating funds as to the reasonable cost of operating the present state park system. Increased costs resulting from inflation and expansion of the system may disturb this understanding.

A closely related question to the amount is the source of funding. Presently, the state park system is funded through ten sources and many of these sources are

<sup>1</sup> Based on July, 1976, and February, 1977 survey extrapolated to annual participation through 1973 SCCRP, Vol. II, Part 1, p. 6-10 and adjusted to 1978.

<sup>2</sup> Total Boating Costs 1976 ÷ Boating occasions 1976 inflated to 1978 where the rate of inflation is assumed to be 7.6% per year.

<sup>3</sup> There are certain negative and positive externalities associated with investment in recreation. An example of a positive externality is that an unknown amount of each dollar spent at a water based campground also benefits the boater. A negative externality occurs when a dollar spent on an activity actually requires the investment of more than a dollar in order to protect the interests of other recreationists. The data on the entire system seems to indicate that the positive externalities outweigh the negative by about 6%.

earmarked for specific uses often precluding allocation of financial resources on the basis of "need."<sup>1</sup> A traditional source of revenue for the park system has been the State General Fund. To the extent that the state park system produces benefits accruing to the entire society rather than specific recreationists, this is a legitimate source of funding. The problem is that it is a limited fund derived from an already strained tax base for which there is intense inter-agency competition. For the good of the state park system as well as the state taxpayer it appears that managers should place high priority on finding techniques which minimize demand for the State General Fund.

One alternative to the State General Fund is to increase direct fee charges for the use of state park system sites. This might include:

- 1) Increasing camping fees.
- 2) Institution of day-user fees.
- 3) Increasing non-resident fees.
- 4) Increasing season-use fees.
- 5) Selling park conservation stamps similar to hunting and fishing licenses.
- 6) Increasing cabin site and concessionaire fees.
- 7) Increase admission fees to Lewis and Clark Caverns

Work in Fish and Game Region 1 in the summer of 1976 indicated that there is some potential in such increased fees.<sup>2</sup> However, at least temporarily, such increased fees would reduce use and consequently revenue. The cost of collecting additional fees could quickly exceed the new revenue generated. While increased direct user fees has some potential, it is doubtful if such fees will ever fully fund the maintenance of the state park system. Legislative mandates permitting essentially free park use by selected social groups, such as senior citizens, will do nothing to enhance park funding and may do little to enhance recreational participation among those needing it most.

Another alternative is to place more of the burden for maintenance on user groups generally or those whose activities increase demands on the state park system. This alternative might include:

- 1) An excise tax on recreational vehicles and/or recreational equipment.
- 2) Increase registration fees on recreationally related equipment (i.e., vehicles).
- 3) Earmark subdivision filing fees for parks.
- 4) Increase state gas tax and earmark for parks or increase percent of fuel tax earmarked for parks.

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<sup>1</sup> These sources are the General Fund, Coal Tax, Fish and Game Earmarked Revenue, Parks Earned Revenue, Motorboat Gas Tax, Motorboat Registration, Snowmobile Gas Tax, Snowmobile Registration, Motorboat Safety and federal and private revenue.

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<sup>2</sup> Montana Department of Fish and Game, Parks Division, On The Potential Efficacy of Day User Fees in Eleven Water Based Recreation Areas of Northwest Montana, 1976.



Pursuit of any or all of these alternatives, however, will require careful study and planning to assure that the increases are just and reasonable.

Yet another alternative is to rely increasingly on the private sector. The possibility of establishing a Montana State Park Foundation to collect and administer private donations as a perpetual fund for park operation and maintenance is worthy of consideration. Obviously, such an undertaking would be experimental and demand careful planning.

### 3. Is state parks law enforcement adequately funded?

The state park system managers presently have intensive obligations toward only a limited number of activities. These are:

- 1) Off-highway vehicle (OHV) recreation.
- 2) Boating.
- 3) Picnicking.
- 4) Camping (developed area).
- 5) Motorcycling.
- 6) Swimming.
- 7) Snowmobiling.
- 8) Ice skating on natural ice.

The obligation to off-highway vehicle recreation and motorcycling is presently almost exclusively law enforcement. Other activities requiring law enforcement include boating, snowmobiling and general enforcement of the state park system regulation at state sites. The total 1978 park law enforcement budget is about \$340,784 of which \$120,000 is anticipated for water safety and \$44,300 for enforcement of snowmobile regulations. This leaves about \$176,484 for off-highway vehicle recreation and enforcement of land based regulations at all sites within the parks system. Since the average expense for a warden is \$25,000, the budget cannot support more than seven full time equivalent wardens.

The funding of an adequate law enforcement force is vital to the protection of property and the provision of public health and safety. Additionally, adequate law enforcement may be an important factor in maintaining private lands open for recreation. To the extent that law enforcement is not paid for directly it will be paid for indirectly through increased repair and maintenance of recreation areas, user dissatisfaction and private land closure. The incidence of vandalism, combined with comments on law enforcement from the 1976 and 1977 survey would indicate that, while no projection of adequacy of law enforcement can be made, seven wardens are certainly not enough. While direct expansion of the warden force should be a high priority for the Parks Program, some alternatives are obvious. These include:

- 1) Exofficio enforcement training of park's staff.
  - 2) Contracting with local law enforcement agencies to provide law enforcement at specific sites.
- ### 4. Except for law enforcement, how should the parks system operational budget be distributed?

Before any model is used for predictive purposes, it should be capable of describing fairly accurately the current conditions. In other words, if the variables which have influenced the distribution of the 1978 budget can be identified and properly weighed and interrelated, then the model can be adjusted annually to allocate the parks operations budget toward the achievement of specific goals.

It is hypothesized that the allocation of the parks budget is a function of: 1) the available money, 2) the activities for which the parks system has dominant responsibility, 3) the relative importance of these activities statewide and regionally and 4) the degree of present commitment of the state park system to facilities in support of the activity within the region.

The available FY 1978 money is \$1,999,796. Based upon the variables listed above the hypothesized<sup>1</sup> and actual 1978 regional allocation is:

Hypothesized			Actual		
Distribution	Rank		Distribution	Rank	
R-1	19.04%	3	24.65%	2	
R-2	9.03%	5	9.72%	5	
R-3	21.47%	2	47.83%	1	
R-4	25.02%	1	10.24%	4	
R-5	12.94%	4	17.06%	3	
R-6	4.65%	7	5.33%	7	
R-7	8.05%	6	7.34%	6	

Statistically these two distributions are not significantly related; however, when the rank orders are statistically compared they are found to be highly correlated. In other words, the model is a relatively good predictor of regional priorities by rank but a relatively poor predictor of the amount distributed to those priorities. Observation suggests that the model could be improved by considering 1) the impact of non-resident recreation on the allocation of funds and 2) the impact of quality rather than mere quantity of sites already in the system. Until this is achieved the model is too weak to be effectively used for descriptive much less predictive purposes, so the best alternate technique available for distributing the operational budget remains the reliance on precedence modified by the pressures of new opportunities.

<sup>1</sup> The actual method by which the four major variables were used to construct the hypothesized distribution are too lengthy and complex to reproduce here. Technical details on this process are available in the Parks Division files.

5. What amount of money should be spent on the acquisition of land and how should this money be distributed to the Fish and Game regions?

Land acquisition is one method which may be used to provide satisfying recreational experiences and, certainly, if the objective to conserve resources is to be met, it is a method of vital importance. There appears, however, to be no sound method to project how much money should be spent on land acquisition. Theoretically, if one could identify how much land should be conserved under the general parks law and the period over which it should be conserved, a desirable annual budget for land acquisition could be developed. Since the variables presently defy quantitative definition, however, the land acquisition program must continue to reflect the will of the people through the appropriations of the State Legislature.

Given that X dollars are available for acquisition, the theoretical regional land acquisition budget could be calculated by the same general method used under question 4) above. However, since this method proved inadequate for explaining the relatively well understood operational budget, its use on budgeting for land acquisition would be entirely inappropriate.

Further, such rigorous allocation of land acquisition monies is unrealistic. Land acquisition will always be opportunistic so that strict allocation of monies to regions could create a situation where unsuitable land is being bought in one region while prime recreational land is passed over in another region. Such models are blind to the significance of the potential acquisition. There will always be those sites, such as the Chief Plenty Coups State Monument, which command attention for aesthetic and historic reasons even though actual use is relatively low.

There is, however, room to improve the policies and procedures by which land is purchased. Minimally, proposed purchases should be evaluated in terms of their suitability as a state park, monument or recreation area; the lands should be evaluated as to their scenic, historic, archaeological, scientific and/or recreational significance and the long range costs of operation relative to proposed use levels under a long-range management plan should be assessed. These variables should be reduced to a quantitative system with a minimum acceptable score identified. Such a procedure would assure that each acquisition reaches an acceptable standard in the Montana State Park System. The fact must also be faced that this acceptable standard may vary from one region of the state to another.

Managers, including the legislature, must realize that a continued land acquisition program will necessarily lead to a growth in the operational budget request which is greater than the rate of inflation. This factor must be anticipated in the preparation and approval of budgets. Further, even when new acquisitions are intended to remain "primitive," it must be realized that some development to protect the site and provide for the health and safety of users is implicit in every land acquisition.

In the past several years considerable advancement has been made in finding alternative techniques to the fee simple acquisition of land. Under the general provisions of law these techniques include:

- 1) Land donation.
- 2) The use of scenic, conservation and recreational easements.
- 3) The leasing of state trust land.
- 4) Encouragement of private landholders to maintain their lands open to the public.

These techniques should be more intensively applied in the future and considered in formulation of a viable policy for land acquisition in the Parks Program.

6. What should other agencies be spending to operate the overall Montana Recreation System?

A substantial portion of Montana is owned by the federal government. This land ownership places a great obligation on agencies of the federal government, particularly the U.S. Forest Service and the Bureau of Land Management (and to a lesser extent the Corps of Engineers, Bureau of Reclamation and U.S. Fish and Wildlife Service) to assure that the recreational potential of their lands is adequately managed. These federal agencies have primary responsibility for the management of trail activities, both vehicular and non-vehicular and dispersed or non-site oriented camping in addition to maintenance of existing sites.

The minimal acceptable 1978 recreation budget for the U.S. Forest Service in Montana is \$2,750,684<sup>1</sup> and for all other agencies and the private sector \$1,887,931.77.<sup>2</sup> Since the private sector must retrieve operations cost in order to survive, the entire \$1.9 million can be ascribed to the federal government with the majority being attributable to the BLM and lesser amounts to the Corps of Engineers and the Bureau of Reclamation. The proposed accepted budgets include only operations and no money for capital improvement or land acquisition.

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- 1 Total 1978 operations costs x U.S.F.S. share of all sites less 6%
  - 2 Total 1978 operations costs less state and U.S.F.S. share and less 6%

It has proved nearly impossible to acquire accurate figures to compare against the desired federal agency budgets. However, the difference between the desired and the real budget is apparently great. This situation should receive the immediate attention of federal authorities and receive high priority for rectification if state and national recreation needs are to be met in a manner consistent with the long range capacity of the recreational resources.

7. How will the state's share of the Land and Water Conservation Fund be allocated in the foreseeable future?

The Land and Water Conservation Fund performs a vital function in providing recreational facilities in Montana. Anticipated Land and Water Conservation Funds for Montana should amount to \$3 million in 1978, \$3.7 million in 1979 and \$4.5 million annually between 1980 and 1989. In this plan, full funding is both recommended and assumed through 1989.

The Land and Water Conservation Fund serves essentially four functions in Montana:

- 1) Provides for expansion of urban recreational lands and facilities.
- 2) Provides for expansion of the state park system as described in Title 62, R.C.M. 1947.
- 3) Provides for acquisition of fishing access sites under Sec. 26-234, R.C.M. 1947.
- 4) Assists the state recreational planning effort authorized under Sec. 62-403(1), R.C.M. 1947.

These priorities were established as a result of surveying the legal responsibilities of the Parks Program and the needs and demands of recreationists. The problem, however, is to define the degree of commitment to these priorities. To do this, stability of state and federal funding must be assumed.

a. Allocation to Planning - More than a decade of experience with planning indicates that an adequate planning function can be carried out for not more than 2% of the total Land and Water Conservation Fund available. The contribution of adequate planning, including traditional comprehensive planning, program planning, and planned programmed budget preparation, is recognized as vital to the formulation of a quality state recreation system. However, unlike pure or applied research, planning projects should be selected on the basis of their direct contribution to the overall state programs. Certainly project priorities should not be set as a response to intra-governmental regulations established by those at a distance from the "front-line" problems. Planning costs above 2% of the annual Land and Water Conservation Fund available to the state should be conducted with other funds or not done at all.

b. Allocation for fishing access sites (Sec. 26-234, R.C.M. 1947) - According to 1973 SCORP data (Vol. II, Part I, P. 4-5) fishing is the fourth most popular outdoor recreation activity among Montana adults and the fifth among children. The July, 1976, Statewide Summer Recreation Survey confirmed the continued importance of fishing as an outdoor recreation activity in Montana. Further, the July, 1976, survey confirmed that Montanans are experiencing difficulty in finding access to Montana's streams and rivers<sup>1</sup> and generally see a need for a program to enhance stream bank access. Further, planning research within the Fisheries Program of the Montana Department of Fish and Game has revealed a general statewide pattern of insufficient supply of fishing access land (2nd draft paper of 11-5-76, "A Comparison of Regional Fishing Access Needs and Benefits).

<sup>1</sup> 42.6% agreement with the statement "I have experienced difficulty in gaining adequate access to rivers and streams in my county.

<sup>2</sup> 62.9% agreement with the statement "Montanan's need greater access to all rivers and streams in the state."

In anticipation of these needs the Montana State Legislature has reserved money from the sale of each fishing license for the "purchase of fishing accesses, stream, river and lake frontages and the land deemed necessary to provide recreational use thereof" (Sec. 26-234, R.C.M. 1947). In conjunction with Sec. 26-234 the Fish Program has initiated a policy of acquiring "fisherman access sites by priorities based on habitat and access needs (Department of Fish and Game, Six Year Projection, Fish Program, EPP Form 1). These priorities are currently under development. Furthermore, while the majority of benefits from this program accrue directly to the fisherman substantial benefits accrue to all recreationists seeking waterfront accessibility.

Given the needs and program stated above, any projects initiated by the Fish Program under authority of and deemed acceptable to the intent of Sec. 26-234 are eligible for Land and Water Conservation Fund matching funds to the extent that such funds are available and the project otherwise satisfies all requirements of the Land and Water Conservation Fund Act and associated regulations (U.S. Department of Interior, Outdoor Recreation Grants-in-Aid Manual, 1973 as amended).

For the near future provisions of Sec. 26-234 are expected to generate roughly \$450,000/year. This implies authorization of expenditure of Land and Water Conservation Funds up to this approximate amount for projects under Sec. 26-234 if projects meeting the criteria of the Fish Program can be identified.

Obviously the sudden availability of substantially more than \$450,000 for projects under Sec. 26-234 would necessitate reevaluation of priorities for the application of Land and Water Conservation Fund to Sec. 26-234 sponsored projects.

c. Allocation of Land and Water Conservation Fund to urban projects and Title 62 R.C.M. 1947 (General State Park System) - Money not assigned to planning or the Fishing Access Site Program is available for urban area projects and the acquisition and development of sites under Title 62. It is not simple, however, to determine how money should be allocated to these projects.

In general the urban projects are viewed as the highest priority with demand for state funded projects limited by 1) availability of matching money, 2) availability of long range operations monies and 3) the availability of lands suitable for acquisition under Title 62. The third factor is critical. While state demands on the Land and Water Conservation Fund may normally be relatively low, the opportunity to acquire critical land may, in a given year, increase demands significantly. If such opportunities are missed because of an excessively rigorous allocation system they are generally missed forever. Obviously, the reverse is true. When a community has the opportunity to acquire uniquely valuable recreational land the state system may be required to defer its activities.

The long range goal subscribed to over the past decade of generally attempting to make at least 50% of the Land and Water Conservation Fund available for urban projects seems adequate so long as it is understood that in any given year response to unique opportunities may demand considerable modification of this allocation mode

#### Presumed Allocation

Distribution of Land and Water Conservation Fund monies in Montana should approximate through 1989:

<u>Priority</u>	<u>Amount</u>
Urban Areas	Not less than 50%
State Park System	Approximately 40%
Fishing Access Sites	Not more than 8%
Planning	Not more than 2%

In the final allocation of Land and Water Conservation Funds, land acquisition should be stressed. The final decision to divert money from one priority to another will be based upon availability of uniquely valuable recreation lands, be they urban or rural, in immediate danger of being compromised if they are not acquired.

SUMMARY OF RECOMMENDATIONS TO IMPROVE THE ALLOCATION OF  
FINANCIAL RESOURCES TO RECREATION IN MONTANA

- 1) The Montana Department of Fish and Game must identify additional reasonable, implementable sources of funding for operation of the Montana State Park System.
- 2) Efforts must be made to increase and improve the quality of law enforcement within the state park system.
- 3) The impact of non-residents on state resources needs to be identified and policies with respect to tourism need to be established or reviewed as appropriate.
- 4) Policies, priorities and procedures with respect to land acquisition under Title 62 need to be clearly articulated and a quantitative technique found which assures that each acquisition is at least minimally acceptable under the stated policies and priorities.
- 5) There is considerable evidence that federal agencies are underfunded with respect to their obligation to operate recreation resources in Montana and this situation should be rectified.
- 6) Efforts must be continued and expanded to develop expertise in acquiring land and recreational access and opportunity through other than fee simple purchase at fair market value.

MAJOR TASKS TO BE UNDERTAKEN IN THE PARKS PROGRAM  
OF THE DEPARTMENT OF FISH AND GAME

This plan has identified seventy-three problems which may substantially interfere with meeting the goal of managing Montana's resources in such a manner as to meet present and future demand for recreation participation consistent with resource capabilities. While all of the problems are real, many will best be addressed by other agencies or levels of government while still others are presently insignificant and may be dealt with on an opportunistic basis without specially directed efforts. Among the identified problems, however, there remains a number conceived of either as they are now stated or as symbolic of still broader problems which command immediate and significant effort. Once these problems are clearly identified they form the basis of redirecting effort toward the solution of major problems--the singular objective of program planning.

In order to facilitate the process of identifying significant problems, Montana Department of Fish and Game personnel were asked to prioritize the importance of activities and identified problems to their areas of operation. Twenty-three problems emerged as major but many of these major problems addressed different aspects of a broader underlying problem. Consequently, the twenty-three problems were edited into a relatively small number of major tasks, again reviewed by Department of Fish and Game personnel, and submitted to appropriate administrators for final approval. These tasks are summarized in Table I.

In order to accomplish the tasks set out it is desirable to establish objectives to monitor progress and to delineate possible strategies for coping with the

problems. At the same time, it must be recognized that were the planning process to identify major tasks not already known to park managers, the planning process itself should be questioned. This suggests that significant departmental effort directed to each task should already be identifiable. The tasks, the objectives, the current effort in addressing the tasks, and strategies which will be undertaken are summarized in Table II.

TABLE I

## Major Tasks Of The Park Program

1. The state park system must be maintained at a level acceptable to the public.
2. Additional and alternative reasonable sources of funding must be found to support the state park system.
3. In order to best utilize present and prospective limited funds there is a need to establish regional management plans which will relate directly to the actions and budgets of Montana's regions conceived of either as resource areas or administrative units.

Prerequisite to or concurrent with the formulation of these regional management plans the following tasks must be accomplished:

- a. Overall policies, procedures and criteria to adequately evaluate potential land acquisitions must be established and/or more adequately articulated.
- b. Efforts to provide for river and lake access must be continued; alternate sources of funding and alternate methods to fee simple land acquisition must be found; efforts must be undertaken to protect the rights of adjacent landowners and the environmental quality of Montana's rivers and lakes must be continued.
- c. Conflicts and overcrowding within the state park system require for the protection of users, facilities and

resources, the establishment and implementation of sound management plans for these areas.

- d. Maximum benefits must be derived from present law enforcement resources available to the Parks Program and with this accomplished, the adequacy of the current level must be evaluated.
4. The snowmobile management program must be more adequately implemented and efforts to establish an adequately funded unified off-highway vehicle management program should be made.
5. Since the bulk of outdoor recreation in Montana will occur in urban areas, program managers must continue to refine procedures assuring fair and equitable distribution of the LWCF to Montana's communities including the gathering of necessary data, provision of information on the program, assurances that facilities are serving the widest possible population, and the stimulation of innovative approaches to project and program design and development.
6. Efforts must be continued and expanded to insure that rural subdivision and the extraction and development of natural resources, particularly on public land, are conducted in a manner compatible with the long range interests of Montana's cultural, scientific and recreational resources.



TABLE II

## Tasks, Objectives, Present Activity And Prospective Strategies

## State Park Program

TASK  
(See Table I for detail)5-YEAR  
OBJECTIVES

## CURRENT ACTIVITY

## STRATEGIES

1. Operation of a basic park system.

Maintain 9 state parks, 13 state monuments, 6 state recreation areas, roads and trails, the Parks Program share of 156 fishing access sites, plus such expansion of the physical sites and the addition of new sites as the Legislature may see fit to authorize.

1. While the 1977 funding and staffing of the state park system appears reasonably adequate this condition may degenerate as new sites are acquired and as relatively new physical structures age and consequently demand greater maintenance.
2. Experimentation with program budget formats which seek to unify all aspects of state park management.

- a. Maintain funding and staffing at a level consistent with the size of the park system.
- b. Avoid expansion of the system in terms of both physical structure and non-physical responsibilities unless adequate operations funding accompany any prospective expansion. Establish a desirable number of on-site personnel to the number of sites and degree of site use.
- c. Experiment with management techniques which may improve utilization of on-site personnel.
- d. Experiment with techniques which reduce the needed support staff relative to on-site personnel.
- e. Experiment with techniques aiming at making the state park system economically more self-sufficient.
- f. Devote more effort to developing a property management system which identifies prospective required maintenance so that the maintenance scheduled can be anticipated and planned for.

TABLE II (Continued)

TASK (See Table I for detail)	5-YEAR OBJECTIVES	CURRENT ACTIVITY	STRATEGIES
2. Identification of additional and alternative sources of funding.	To provide administrators, the Office of the Governor, the Legislative Assembly and the Public with adequate information on funding problems within the Parks Program, to provide decision makers with adequate and impartial information concerning costs and benefits associated with alternative prospective techniques for adequately funding the Parks Program and to help decision-makers achieve an adequately funded park system.	<ol style="list-style-type: none"> <li>1. Experimentation with program budget formats.</li> <li>2. Analysis of the efficacy of the state cabin site fees.</li> <li>3. Analysis of techniques for increasing direct fee charges for the use of state park system sites.</li> </ol>	<ol style="list-style-type: none"> <li>a. Determine the purpose of the state park system user fees and evaluate the efficacy of the current structure in light of the purpose.</li> <li>b. Increase efforts to find, analyze and recommend techniques for increasing direct fee charges for the use of state park system sites.</li> <li>c. Increase efforts to find, analyze and recommend techniques for placing greater costs on recreational use groups generally or those whose activities increase demands on the state park system.</li> <li>d. Increase efforts to analyze the viability of a State Park Foundation aimed at defraying the public costs of operation and maintenance.</li> <li>e. Increase efforts to determine the fair costs and benefits derived from the park system and especially the fair cost burden to benefit ratio as it varies with the public generally and user groups particularly.</li> </ol>

TABLE II (Continued)

TASK (See Table I for detail)	5-YEAR OBJECTIVES	CURRENT ACTIVITY	STRATEGIES
3. Regional management planning.	To produce by 1983 management plans for each Fish and Game Administrative Region, two of which should be produced on an experimental basis by June, 1979.	<ol style="list-style-type: none"> <li>1. Reorganization of the department to reflect greater regional responsibility.</li> <li>2. Planning projects to be initiated in January, 1978, which will review methods of region management planning and their relevance to Park Program goals and organization.</li> </ol>	<ol style="list-style-type: none"> <li>a. Establish minimum standards of acceptability for Regional Management Plans. The planning process be carried out by the Helena staff with the cooperation of individual regions. Plan implementation would then become the responsibility of the regions following plan approval.</li> <li>b. To explore and subsequently implement an alternative technique of program planning and zero base budgeting. The alternative selected, if any, should be adaptable to the management of park resources.</li> <li>c. Undertake efforts to clarify the roles, responsibilities, and policies of the several levels of government with respect to outdoor recreation.</li> <li>d. Undertake efforts to alter the Bureau of Outdoor Recreation Grants-in-Aid manual to permit greater freedom in planning methodology particularly with reference to statistical procedures, public participation and inter-government cooperation.</li> </ol>
3a. Enhance Land Acquisition procedure and policy.	To establish and continually evaluate an approach to land acquisition based on clearly understood procedures and policies reflective of goals and objectives. To communicate this approach to Department of Fish and Game personnel, the Fish and Game Commission, the legislature and the public.	<ol style="list-style-type: none"> <li>1. Basic delineation of policy for the Legislative Finance Committee.</li> <li>2. Recent public information articles.</li> <li>3. Recent review of land acquisition policies and procedures within the Parks Program.</li> <li>4. Continuing effort in the Fish Program to place evaluation of potential acquisitions on a quantitative basis.</li> </ol>	<ol style="list-style-type: none"> <li>a. Establish a task force to delineate responsibility and procedure, set goals and provide for the standardization of evaluation data and procedures.</li> <li>b. Establish an aggressive program for explaining the purpose, objectives, and techniques of the land acquisition function to the public and the Legislature.</li> </ol>

TABLE II (Continued)

<u>TASK</u> (See Table I for detail)	<u>5-YEAR</u> <u>OBJECTIVES</u>	<u>CURRENT ACTIVITY</u>	<u>STRATEGIES</u>
3b. Enhancement of rivers and lakes for recreational use	<p>To identify rivers and lakes having significant recreational values.</p> <p>To make these accessible and usable.</p> <p>To take necessary steps to protect their values and the rights of adjacent land owners.</p>	<ol style="list-style-type: none"> <li>1. Cooperation with river basin commissions.</li> <li>2. Experimentation with public-private cooperation management of selected rivers.</li> <li>3. Land and Water Conservation Fund involvement with fishing access site acquisition.</li> <li>4. Park system involvement in operation and maintenance of fishing access sites.</li> <li>5. Provision of information to the public on the use of selected rivers.</li> <li>6. Provision of information to the public on the status of several rivers of high recreational value.</li> <li>7. Development of site specific management plans for newly acquired water based sites.</li> </ol>	<ol style="list-style-type: none"> <li>a. Inventory rivers and lakes to establish recreational values.</li> <li>b. Explore alternate sources of funding so that acquisition of access can be aimed at broadened recreational values.</li> <li>c. Following inventory, enhance the State Recreational Waterways System (ARM 12-2.26(1)-S2670) so that it constitutes an effective management tool.</li> <li>d. Accelerate efforts to gain less than fee simple access rights and to pursue multi-agency and public management agreements.</li> <li>e. Increase efforts to inform the public on safe and enjoyable river and lake recreation use and to inform the user on his obligations to river and lake resources as well as obligations to adjacent land owners.</li> <li>f. Enforce bank-side use of navigable rivers and seek legislation to clarify the limits of legitimate use of these resources.</li> <li>g. Continue and enhance inter-agency cooperation in water management programs such as "208-planning" and cooperation with river basin commissions.</li> <li>h. Prepare, implement, and continuously evaluate river and lake management plans. These plans should identify those rivers and lakes which may bear more use or which require stabilization of use and identify techniques which will permit these goals to be achieved.</li> </ol>

TABLE II (Continued)

<u>TASK</u> (See Table I for detail)	<u>5-YEAR</u> <u>OBJECTIVES</u>	<u>CURRENT ACTIVITY</u>	<u>STRATEGIES</u>
3c. Provide site management plans.	<p>To determine those sites deserving long-range management plans and to complete these site specific management plans by June, 1983.</p> <p>To provide and implement a system for continuous evaluation of these management plans.</p>	<ol style="list-style-type: none"> <li>1. Management plans are being provided with the development of major new areas and with re-development of major sites within the system.</li> <li>2. Experiments are being undertaken to integrate the site management planning with preparation of Environmental Impact Statements and Preliminary Environmental Reviews.</li> </ol>	<ol style="list-style-type: none"> <li>a. Conduct inventory to determine sites needing management plans.</li> <li>b. In addition to needs for capital improvement and a schedule for heavy maintenance, the management plans should address the site goals in, if possible, quantitative terms, expected levels of visitation, fee collection schedules, techniques for coping with excess use, if any is expected, and the anticipated long-range operations requirements and the means by which these requirements will be met.</li> </ol>
3d. Parks system law enforcement effort must be enhanced.	<p>To assure that maximum benefit is derived from the present law enforcement resources of the Parks Program and to evaluate the adequacy of this force.</p> <p>To provide 11,138 hours of park system patrolling, 75% of which is to be provided between May 15 and Sept. 15, between 5 p.m. Friday and 7 p.m. Sunday by the 1978 season.</p>	<ol style="list-style-type: none"> <li>1. 44th Montana Legislature approved funding of the Parks Program Law Enforcement Activity Package which placed a portion of the warden force on valid park system funding sources. Managers are now attempting to direct this force to areas and periods of greatest need.</li> <li>2. Exofficio law enforcement training of Parks personnel.</li> </ol>	<ol style="list-style-type: none"> <li>a. As that portion of the warden force funded under parks is directed to the areas of greatest need, evaluate its effectiveness in maintaining an acceptable level of compliance with regulations.</li> <li>b. Evaluate park regulations continuously for their ability to serve the recreating public and the long-range welfare of the resources.</li> <li>c. Where appropriate, contract with local governments or private enterprise to provide for Parks Program law enforcement.</li> <li>d. Increase exofficio law enforcement training for Parks personnel.</li> <li>e. Retain temporary law enforcement officers to enforce park laws during periods of greatest need.</li> </ol>

TABLE II (Continued)

<u>TASK</u> (See Table I for detail)	<u>5-YEAR</u> <u>OBJECTIVES</u>	<u>CURRENT ACTIVITY</u>	<u>STRATEGIES</u>
4. Establish an Off-highway Vehicle Management Program	To provide services to OHV users necessary to enhance their recreational experience while lessening conflicts with other recreationists and protecting the resource base.	<ol style="list-style-type: none"> <li>1. Implementation of 1977 Legislative action earmarking .3% of the state gas tax to provision of areas and services for snowmobiling.</li> <li>2. Coordination with the Wildlife Program and Montana snowmobilers in determining areas of potential conflict between snowmobilers and wildlife.</li> <li>3. Development and enforcement of regulations affecting the use of snowmobiles.</li> <li>4. Development and enforcement of regulations affecting the use of OHV's on state areas, and snowmobiles statewide.</li> <li>5. Coordination and cooperation with appropriate agencies in transportation planning and enforcement of regulations.</li> </ol>	<ol style="list-style-type: none"> <li>a. Increase coordination and cooperation with appropriate agencies in transportation planning, formulating and enforcing regulations, identifying potential play areas and in educating the user and the public.</li> <li>b. Enhance coordination and cooperation with appropriate user groups in the areas of planning, regulation and enforcement, education and the identification of appropriate user areas.</li> <li>c. Encourage communities to consider OHV's in their planning efforts and in the formulation of projects and programs.</li> <li>d. Seek federal and state legislation clarifying OHV management responsibilities, particularly those rules associated with regulation and enforcement.</li> <li>e. Seek federal and state legislation which assures adequate funding for the provision of services and facilities for OHV users.</li> <li>f. Encourage the OHV industry to cooperate with federal, state, and local agencies in providing services to off-highway vehicle recreationists.</li> </ol>

TABLE II (Continued)

TASK (See Table I for detail)	5-YEAR OBJECTIVES	CURRENT ACTIVITY	STRATEGIES
5. Provision of services to communities in the administration of the Land and Water conservation Fund grants.	To make officials in all communities aware of the LWCF Program and to fairly and equitably allocate these funds through acceptable procedures to the communities in the amount of about 50% of Montana's share of the LWCF.	<ol style="list-style-type: none"> <li>1. Through the Grant Administrator, prompt attention is given to each prospective sponsor.</li> <li>2. Formal procedure to evaluate prospective projects against stated goals.</li> <li>3. Formal explanation of the nature and purpose of the LWCF to potential sponsors.</li> <li>4. Close coordination with the League of Cities and Towns, and the Montana Recreation and Park Association.</li> <li>5. Assistance with actual project administration to grant recipients.</li> <li>6. Inspection of projects for compliance with terms of the grant.</li> </ol>	<ol style="list-style-type: none"> <li>a. Up-date of data base necessary for the fair and equitable evaluation of prospective projects.</li> <li>b. Enhance efforts to assure that recreation values are given adequate attention in the conduct of local planning efforts.</li> <li>c. Enhance efforts to assure a level of planning for recreation appropriate to each community's size and needs</li> <li>d. Coordinate and cooperate with appropriate agencies to assure that communities have available an acceptable level of technical assistance at a minimum cost necessary to determine the future use of and needs for local recreational resources.</li> <li>e. Enhance cooperation with the Association of Counties and the Montana Department of Community Affairs.</li> <li>f. Support maximum congressional funding of the LWCF and reestablishment of a maximum allotment of 40% of appropriated funds to federal agencies.</li> <li>g. Seek legislative appropriation to provide for the non-federal share of administrative overhead costs associated with LWCF grants to all political subdivisions of the state and thus eliminate the administrative overhead costs currently borne by the political subdivisions of the state.</li> </ol>

TABLE II (Continued)

<u>TASK</u> (See Table I for detail)	<u>5-YEAR</u> <u>OBJECTIVES</u>	<u>CURRENT ACTIVITY</u>	<u>STRATEGIES</u>
6. Assure compatibility of recreational, cultural, and scientific resources with the development and use of other resources.	To assure that major recreational, cultural, and scientific resources are identified and their value considered in making resource utilization decisions.	<ol style="list-style-type: none"> <li>1. Coordination and cooperation with the Montana Historical Society and the National Park Service in identifying cultural and scientific resources deserving of preservation and identifying methods of achieving preservation.</li> <li>2. Direct management of selected sites for their scenic, scientific and cultural values as significant variables and consideration of these values in making decisions to acquire, design, develop, and operate these sites.</li> <li>3. Presently, much time is spent in reviewing plans and development proposals of various types; however, this effort is presently inconsistent in application and lacking in central direction.</li> </ol>	<ol style="list-style-type: none"> <li>a. Enhance land acquisition policy and procedures to assure that scenic, scientific, and cultural values are systematically considered.</li> <li>b. Enhance site management planning to assure systematic consideration of scenic, scientific, and cultural values in decisions to develop and in methods of operations.</li> <li>c. Parks Program administration analyze the activities associated with the review and coordination functions within the Parks Program and attempt to give it central direction and maximum effort in achieving the stated objective.</li> </ol>





